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GLEANINGS

A JOURNAL DEVOTED
TO BEES
AND HONEY
AND HOME
INTERESTS.

BEE CULTURE

ILLUSTRATED
SEMI-MONTHLY

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REFINED SUGAR is not so good as honey for spring feeding, says J. B. Hall, *Canadian Bee Journal*, and West India sugar is better than either. Now, what's West India sugar?

DON'T SPRING any more new things on us, Mr. Editor, till we have time to recover breath; 18-foot foundation! Whew! When will you have 9-ft. brood foundation? [In about a month, perhaps.—ED.]

AN ITEM of prime importance with me in carrying out bees I don't find mentioned by Doolittle, p. 262. It is to have the cellar wide open all night before carrying. Then no smoke is needed, and it isn't necessary to fasten bees in hives.

THAT'S A GOOD IDEA of Doolittle's, p. 263, to have a plank covered with wet cloth to stop a deep entrance when carrying out bees. I used to use a wet rag for stopping a shallow entrance, but never thought of a board to help in the deeper entrance.

KILLING OFF OLD BEES in the fall was recommended at Ontario convention by Jacob Alpaugh, and indorsed by J. B. Hall. They think an extra number of bees in winter need extra honey, and the dying of the old bees through the winter helps kill young bees.

H. D. BURRELL's article, p. 259, makes me think selling honey is easier than I supposed. I've always supposed him a good bee-keeper, but never a salesman. He's one of the quiet kind, so deficient in "cheek" that you can almost see his back teeth through his face.

HUTCHINSON must sit up nights to find such appropriate couplets for his headings, and to arrange his advertising pages. The latter are the prettiest—well, I think I'd better not start another quarrel with the Medina printers till they get cooled down a little over that spelling business.

TO OFFSET your flinging W. F. Marks with his section-holder at me, p. 268, I may mention I've just had a letter from J. L. Anderson, a bee-keeper of 35 years' experience, who has raised tons of honey, and he says, "I have

used section-holders and T supers, but I made kindling-wood of the former, and use the latter."

THE PREMIUM, if generous, is the chief thing to work for in exhibiting honey at fairs, says J. H. Martin in *Review*, and the editor says he's right. One Weed show, as given in GLEANINGS, is worth ten exhibits at fairs—so much hurly-burly at fairs, and so much hurry in sight-seeing that little permanent impression is made.

PROF. LEUCKART, whom the older readers will remember as the able German scientist who helped to establish the Dzierzon theory, died in January, aged 74. [It seems to me we Americans should give him more than a passing notice. Who will furnish his biography and his photo? Perhaps friend Gravenhorst, of the *Bienenzeitung*, can do it.—ED.]

EDITOR ABBOTT sharply jerks up a writer in St. Louis *Republic* for saying, among other things, that extracted honey granulates and becomes like sugar in cold weather, and then gives the other fellow a chance to jerk him by saying, "There is just as much difference between granulated honey and sugar as there is between liquid honey and sugar." [Ha, ha! good joke on Abbott.—ED.]

WM. STOLLEY reports in *Busy Bee* that his bees have been trapped and killed by the bushel at a beet-sugar factory, and asks if the Union can help him out. There's probably no help for him with present laws; but if proper efforts were made, laws might be secured obliging such bee traps to screen out the bees. Bee-keepers, however, are very shy about asking any legal protection.

"THREE MEN, or even one man and two smart boys, can easily go over an apiary of 200 colonies before breakfast, and ascertain just which hives need honey, and exactly how many frames each should be contracted to," says the editor of *American Bee-keeper*. Say, I. S. Tilt, that's worse than my scraping 1200 sections in a day. Now you have a tilt with Hill, and lay him low in some hollow.

APIIS DORSATA is cuddled just a little by *American Bee-keeper*. It's none of my funeral, for I don't believe the big Indian bee would live as far north as Illinois; but I think just as I've always thought, that it will be easier to find out whether they can be domes-

ticated without bringing them here, and it will be a mighty mean trick if Uncle Sam or any other man turns them loose on southern bee-keepers till it is first known they can be controlled.

A FEW DAYS AGO I ran out of new separators, and had to clean some old ones. I could make pretty fair wages at it, but still I think I'd rather have new. Then I tried cleaning fences on a very small scale. With my present attainments I know (if you will excuse the audacity of the word) that I can clean plain separators more rapidly than fence, making fences more expensive for me than plain separators in the long run.

THAT STORY on page 263 is good, friend Doolittle; but the question is, whether it applies to you or "the other fellow." A. Bridge says, in April *C. B. J.*, that he used to set out his bees on successive days, but learned it was bad policy, and now sets out all together. The earlier lots would take their cleansing flight, and then be ready to rob those taken out later. He says the bees mix when taken out together, but no harm comes of it.

D. N. RITCHEY says, in *Busy Bee*, that farmers hadn't had a crop of clover seed for 20 years till he moved in and bred his bees to such a size they could work on red clover; and now they get big crops of best seed. Bro. Ritchey and I believe in breeding for long tongues, even if some editors don't. [But some of us have not seen those bees yet with long tongues, notwithstanding all the talk about them. Prove your faith by your works.—ED.]

"IN COMB HONEY, over half of the beekeepers of our country are trying to economize by using only one super with 24 or 28 sections. Where are the bees going to be storing honey while they are giving the finishing touches to their sections?"—*C. B. J.*, editorial. Rightly asked, friend Holtermann; but it doesn't really seem possible such a large proportion of bee-keepers are doing any thing so foolish. I should be surprised if there were one in ten. [So should I.—ED.]

I WAS LYING on the lounge (Mr. Printer, be sure not to put a comma between the third and fourth words) reading GLEANINGS, and when I came to the longest item on p. 267 I had to get up and walk the floor. May be nothing in plain sections without separators, but I'd like to try them. [W. K. Morrison, who put that idea into my head, will have something to say upon this question in an early number of GLEANINGS. I am not sure but there is something in his idea. Well, I will have more to say about it when he puts it in his own words.—ED.]

YOU WANT ME to be consistent, Mr. Editor, p. 248; and by that you evidently want me to make it impossible for any one to be dishonest who handles honey of my raising. I can't undertake such a big contract—much as I can manage to be honest myself. But, say; if I should use 2-inch sections as you suggest, many of them would weigh less than a pound.

[Very true. But two-inch sections will average a pound, $4\frac{1}{4}$ square, nearer than your $1\frac{1}{8}$. Say; look here, doctor, if we keep on talking we shall find that, after all our squabble, we are of the same mind on this mooted question. Did you get on my side of the fence or I on yours? Well, I don't care.—ED.]

MY SUB-VENTILATOR got stopped up, and didn't work all winter. But the bees wintered splendidly, less than two in a hundred dying, and those that died were perhaps all queenless. I'm just a bit afraid of the *quality* of air that has traveled under ground. I had no fire all winter. [You have been nearly the only one, doctor, who has advocated the sub-earth ventilator of late. About all the rest seem to have gone back on them. If you have left it because by accident yours got stopped up, and your bees wintered better than usual, it seems to me we have gained a valuable point in experience. Had no fire all winter! Do you mean to imply that the stopping-up of your sub-earth ventilators made it unnecessary? So far as I now recall, you have been about the only one of late who has used fire in the cellar.—ED.]

EDITOR HILL shuts one eye, and looks quizzically at that picture of eight sections, and wonders whether it may not be that the difference was caused, not by difference in sections, but by crowding hard the bees in the plain sections; or, possibly, a difference in comb-building traits of the two colonies. Evidently, the thing to settle the question is to alternate the two kinds of sections in the same super, then something positive will be shown. [It seems to me the question hinges on the point whether Hutchinson picked out a fair lot of either kind of sections as he finds them on the market. Now, then, doctor, are you preparing to fix up a super or two with the two kinds of sections—on the one side the plain section with fences and short cleats, and on the other side bee-way sections with solid separators clear across the faces?—ED.]

MR. EDITOR, please ask J. H. Martin why under the sun he wants handholes if, as he says, p. 249, he can carry a hive with more comfort by grasping the bottom. I'd ask him myself, but I'm not on speaking terms with a man who talks that way about cleats. A handhole is not so comfortable, and you can take hold of a cleat at the part you like best, and two can carry the same hive. The room cleats take in hauling doesn't count much if the weight is unchanged. A hive has two cleats, and only the back one takes extra room. If the cleats in a load took the room of 20 hives, as friend Martin says, there would be more than 500 hives in the load. I didn't think Mendleson had such big loads. [You and J. H. can "have it out." GLEANINGS will furnish the arena as usual. Let's see. You and Doolittle and you and the Rambler are going to fight it out with each other.—ED.]

DR. A. T. PEETE says in *Review* that editorial comments are of more value than any thing except occasionally some rare article. Everybody wants the editor's judgment.

Hutchinson thinks editorials are valued partly because, having much experience in writing, an editor has a pleasing manner, but still more because of the continual stream of correspondence passing through his hands by which he learns to look at things *from various points of view*, and to express his ideas in a very few words. I don't believe you've hit it, W. Z. An editor's words are valued just because they are the words of the editor. The very position of editor, in the minds of us common bee-keepers, presupposes a man who knows more than the rest of us. And so it is that sometimes an utterance "goes" because it comes from the editor of a one-horse paper, when without the paper the same man would not be heard. Happily the editors know as much as they're supposed to know—in most cases—at the present time. [I favor Hutchinson's views rather than yours, doctor. An editor *ought* to know better than the majority of his readers about the subject to which his journal pertains; if he doesn't he will have to step down and out. The mass of matter that passes before his eyes, the greater part of which he can not publish, ought to give him a broader view than that of any reader or correspondent. Then, too, some of these editors tangle among bee-keepers—not only get at their written opinions, but their face-to-face notions. I do not believe an editor's opinion, in this country at least, is valued simply because he tries to fill the editorial chair.—Ed.]

HOLD YOUR HORSES, Ernest! Don't put it quite so strong as to say the plain section "seems about to revolutionize" (p. 267). Remember you're right in the storm-center, and 60 miles from Medina the air seems quite calm. At that distance the most that can be said is that there are possibilities worth looking into. [Very true, doctor; I am in the storm center, and you in the calm. But you will notice that I used the qualifying word "seems." Perhaps I could have expressed my meaning better if I had put the word in italics; and the word "seems" also implies that I was speaking from my standpoint. If you could be at the Home of the Honey-bees, and see some ten girls making fences with the latest approved appliances, turning them out at the rate of 700 or 800 a day apiece, the men sawing out the tuff, and if you could then go into the packing-room and look over the orders for sections, you would *begin* to think yourself, from all indications, that the plain section "seems about to revolutionize methods of comb-honey production."

Now, on the other hand it is fair to state that the great bulk of the sections *without hives* that go out from the Home of the Honey-bees are of the old style, because this year, as in the past, bee-keepers buy what they have been used to, and what they have had right along, rather than some new-fangled thing. This is reasonable, and as it should be. The principal part of the fences and sections we are making are to go in hive combinations. You see the point is right here: Where people are to buy new hives, why not give them the very latest, as they will cost no more?

I do not need to "hold my horses" just yet, because nothing we have ever introduced, I think, ever took so heartily as the plain section. This is not new, but has been in use all of twenty years in a quiet way by bee-keepers in different parts of the country; and the fence itself is also old, having been in use for some eight or ten years, so that I do not regard these new old things as an untried experiment. We can try these things all this blessed season and then not know as much about them as those who have tested them years before us. It certainly does look as if it would in time change our methods of comb-honey production.—Ed.]

CALIFORNIA ECHOES

BY J. H. MARTIN.

In a footnote to Dan White's valuable article upon the grading and sale of honey you lay down certain conditions as follows:

"I hereby agree not to put on the market extracted honey weighing less than 11 lbs. to the gallon." Now, wouldn't it be better to put it at 12 lbs. to the gallon? 11-lb. honey may be all right; but 12-lb. honey would be better, and we want the very best. I know that Dan White will vote for the latter.

There was several tons of honey sent to the Exchange last fall, weighing between 11 and 12 lbs. to the gallon. It was white, and had commenced to granulate. I smelled it, and it had that well-known sour smell. The taste made the condition still more pronounced. I had a bottle of it handy for inspection, and nearly every bee-keeper pronounced it fermented, much or little, according to the state of his smell or taste. A dealer in honey came in, and it was given to him to test, and he pronounced it fine honey. It was eventually sent away, and there was no complaint made as to its quality. Now, in my mind, those bee-keepers who pronounced the honey fermented were better judges of the honey than the dealer or the consumer; but the fact that we never heard from the consumer is not a proof that the honey gave entire satisfaction. The consumer might have bought a small amount, and, finding it not to his taste, would probably eat it and say nothing about it; but he would be careful not to buy that kind of honey again. I have had an opportunity to see that feature demonstrated in this city, where all sorts of honey are sold. The consumer will soon learn where to find the best grade, and stick to it. Let us make the standard 12 lbs

I note that the apicultural-editorial family are bowing and shaking hands with that new editor of the *American Bee-keeper*, Mr. H. E. Hill. Mr. Hill spent a year or so in California; and, though it was a year or so before I came to this State, and though I never saw Mr. Hill, I have heard so much about him that I must just tell what sort of a fellow he

was in the management of bees. My first year in this State, and first bee experience, was with the same parties with whom Mr. Hill worked while he'e — Messrs. Wheeler and Hunt. I noticed that Mr. Hunt had considerable to say about the way Harry Hill managed things. Mr. Hunt, in observing my way of uncapping honey in the ordinary way, with an upward stroke, broke right out in a sort of enthusiastic way, and said, "That Harry Hill, who worked for us, could beat anybody I ever saw in the uncapping of honey. Why, he could uncap with an upward and a downward stroke of the knife; and, before you knew it, it was ready for the extractor. Yes, sir; that Harry Hill was the best all-round bee-man I ever knew."

I heard Mr. Hunt extol Mr. Hill so much that it was a real relief when I, one day, went out on an inspecting-tour with Mr. Wheeler, and he didn't mention Hills of any kind all the way to the apiary. We went to the San Mateo apiary (you know where it is, Harry, up in that canyon past the old Spanish burying-ground where the graves all have a pile of stones on them to keep the coyotes from digging up the bodies). When, in the course of our inspection of these cross Cyprian bees, I stopped to pull out a few stings, Mr. Wheeler broke right out just as Mr. Hunt had as afore-said:

"Why, that Harry Hill, who worked for us, could endure more stings than any fellow I ever saw. He cared no more for stings than I would the bite of a fly. Then he could have more bees in the shortest space of time than any other live man. We came out here one Sunday to see to the bees, and found several swarms on the bushes; and (do you believe it?) he had those bees hived quicker than you could say Jack Robinson. Yes, sir; that Harry Hill was the best all-round bee-man I ever saw."

Mr. Wheeler's talk on the return trip was of a very hilly nature, and I was really glad to get back and have a talk with Mr. Hunt.

Now, if Mr. Hill can sling ink and scissors, and uncap editorials with an upward and downward stroke, the rest of the editorial family had better look out. All hail to the new departure with the *American Bee-keeper*. I believe I will subscribe again.

Southern California is strictly in it for a short crop of honey again. Ventura County, where the best quality of honey is produced, is as dry as a bone. That locality is drier than the more southern counties; but we have nothing to brag of here. Five inches of rain will not make a honey crop; and, even should we get heavy rains now, the moisture would hardly have any effect on the sages. The only chance left is for a moderate yield from wild buckwheat, and that produces dark honey. Then there is a prospect that there will be a moderate yield from the orange-bloom, which is of great extent in Riverside and Redlands. You Eastern honey-producers will not have the California crop to compete with you this coming year.

Mr. N. Levering, the veteran bee-keeper of Southern California, has come into the pos-

session of several apiaries in the extreme northern portion of the State, through the death of his brother. As Mr. Levering does not expect a yield of honey from his bees near this city, he will soon start for the northern apiaries, where a fair yield is expected every year. The northern counties are so near the web-foot State of Oregon that they always get an abundance of rain up there. If we could only turn our long State end for end about every other year we too might be benefited by a perpetual honey crop. I hope Mr. Levering success in his venture.

There is considerable moving of bees just now in this locality. Mr. Brodbeck is moving his bees from the dry hills to the alfalfa districts south of this city. Mr. Graham, the extensive bee-keeper in the northern portion of this county, we understand, is moving his bees over the Tehachapi Mountains into the alfalfa district near Bakersfield. And that is what is the matter. Those fellows up there will make several kicks about those foreigners coming into their pasturage. Well, I trust that there will be no friction in the scramble for pastures new and profitable.

My friend W. A. Pryal, of Oakland, must be much discouraged over the bee-keeping prospects in that portion of the State. He writes me that he has sold part of his apiary, and has sent the rest to Diabolo (that is the way the Spanish say *devil*). I have no doubt my friend means Mt. Diabolo. I regret to hear such a discouraging report from that portion of the State.



A FOUL-BROOD LEAFLET FOR FREE DISTRIBUTION.

McEvoy's Treatment.

BY W. W. CASE.

Mr. Root:—In your Feb. 15th issue you express a desire for Mr. McEvoy's treatment of foul brood—something capable of being issued in pamphlet form. I herewith inclose you a pamphlet of Mr. McEvoy's, issued by the New Jersey State Board of Agriculture, which I think entirely fills the bill.

The preamble and resolutions on p. 2 were drawn by me, I being then (as well as now) secretary of the Huntingdon Co. Board of Agriculture. In all probability, if the edition was stereotyped you will be able to obtain the plates by addressing the Hon. Franklin Dye, Trenton, N. J.

The bee journals of the country must begin to close up on foul brood. From experience and observation I firmly believe that fully forty per cent of the colonies of the country are infected, and the infection may be yet greater.

Now, go careful on "that disease that so closely resembles foul brood, yet is not," as,

under proper conditions, I fail to find any difference in them, each running into the other, and both equally fatal in a malignant form, and are, I firmly believe, different forms or stages of the same disease. You will probably say that I have never seen true foul brood. But I will say that I have seen the disease sweep apiary after apiary out of existence, and have not visited an apiary the past year that was not infected, and yet right in the midst of an epidemic I have seen the disease disappear like magic, and not return, even after a lapse of four years.

Now as regards section honey. Don't you think the upper tier of boxes on p. 128, Feb. 15, is a libel on the profession? Should I run across a bee-keeper who, in even a poor season, could produce nothing better than shown there, I should heartily advise him to soak his head and brimstone his bees.

I say it, and I say it emphatically, that, out of a crop of 3000 lbs. of comb honey the season just past, my honey (sections) was filled equal to that shown in the bottom tier. After all the fine talk on grading honey, do you call that top row any thing but second-class honey? If you do, I should not want you to grade or pack honey for me. I could not hold my trade on it a single season. In the shipments and sale of over 100 cases of honey last year, not a case was disgraced with such sections as are shown in the upper right and left hand corners. The bee-keeper who will furnish such honey for an honest comparison richly deserves a leather medal.

I would say, concerning sales the past season, that my crop was disposed of in less than three days, soliciting at more than 40 per cent above local prices, orders for over 1100 lbs. being taken in less than two hours.

Should such "sass" as this be appreciated, you will hear from me again if I can spare the time. I would say, in closing, I have missed but one honey crop in twelve years.

Baptisttown, N. J.

[I have looked over this pamphlet, and to my mind it is the best of any thing that has yet been produced. Perhaps we can issue it in cheap form, and along with it give a copy of that excellent foul-brood law which has given such good results in Wisconsin. If this pamphlet were generally circulated among bee-keepers it might stimulate an effort to secure good foul-brood laws in every State. The State of New York is very much in need of an active foul-brood inspector — not that I claim that foul brood is pretty well scattered over the State, but there are certain sections where the disease, unless checked, will soon be working havoc. One would think that bee-keepers ought to have gumption enough and interest enough to know when they have the disease, and, having found it, to cure it. The fact of the matter is, there are hundreds and hundreds who do not look into their hives until toward the approach of the honey-flow, and even after that they do not examine into the brood-chamber the rest of the season.

In regard to that honey in the upper tier: In defense of Mr. Hutchinson I would say

that the honey selected is a fair average of what I have seen on the market, and what we have been able to buy. Even Mr. Doolittle, who defends the sections with the bee-ways, thinks it more artistic than the honey in the lower tier. If you have a method whereby you can secure well-filled sections as good as those of Mr. Aspinwall's or Danzenbaker's, in the old-fashioned two-bee-way sections, you deserve a chromo — not saying that you can not do it, for I believe you can. I should be pleased to have you tell us something of your super and of your method. We can stand your "sass," especially when you do not put it on any thicker.—Ed.]

THE PAST SEASON IN MINNESOTA.

Young Bees or Old for Going into Winter Quarters:
Foul Brood, and Curing the Same with
Bisulphide of Carbon.

BY C. DAVENPORT.

The past season in this locality was one of the poorest for honey that I have ever known; still, it might have been much worse, as some surplus was stored by strong colonies. During the season of 1896 there was an abundance of white clover here. In fact, it was one of the heaviest stands I ever saw. The past season there was but very little of it that blossomed, as it was, early in the season, greatly injured by a species of small ant. These ants were very small, but they made up in numbers what they lacked in size. All the pasture land in the rich bottom ground around here was literally dug up by them to such an extent that, although we had plenty of rain, the grass in some of these pasture lands turned brown, the same as it did during the great drouth we had here a few years ago. During the fore part of July these ants disappeared as mysteriously as they came; and, though the white clover revived some afterward, it was very dry all the fall, and the prospect for a good stand of white clover next season is poor. There is considerable basswood here; but last season, as for several years past, it was an entire failure. From two yards the past season, containing 241 colonies, spring count, they averaged about 25 pounds of surplus per colony—about two-thirds comb, the rest extracted. About half of it was white, the rest amber and dark; but very little of the white would grade fancy.

I had a chance to sell the bees in the out-yard last fall, and, owing to the poor prospect for next season, I let them go. I now have 153 colonies which were cellared the latter part of November, most of them heavy with stores, and all strong in bees. As there was a fall flow, brood-rearing was kept up late, so there was plenty of young bees, which, in the opinion of many, will be a large factor toward their successful wintering. But my own experience leads me to believe that late fall flows and young bees have but little to do with successful wintering, from many similar instances which lead me to this belief. I will cite that, in the fall of 1896, there was no fall flow.

Honey-gathering stopped with white clover, and brood-rearing stopped very early also, as no feeding was done until late for winter stores, to such colonies as needed it, and out of 244 colonies I lost only three.

Now, during the fall of 1894 there was a fall flow, and brood-rearing was kept up very late; but I met with a very heavy loss that winter and following spring, but it was owing mostly, I think, to the poor quality of the fall flow.

Some time ago I noticed in GLEANINGS that foul brood was spreading in some parts of the country. While I have never had a case of foul brood, I have always had a great dread of it; for, although it can be cured, it is a great expense, and involves a great amount of work. Some time ago, in the *A. B. J.*, I gave it as my opinion that the fumes of bisulphide of carbon would kill the germs and spores of foul brood. I described how I subjected a piece of foul-brood comb containing dead and rotten larvæ, as well as cells of sealed honey, to these fumes for about ten hours, in an air-tight box. This piece of comb was then placed on top of the brood-frames of a colony. The cover was then pressed down, and the front of the hive raised so that none of it could escape or get out of the hive unless carried out by the bees. This was three years ago last summer, and no signs of the disease have appeared in that colony yet. There is no mistake about that comb being foul broody. It was genuine foul brood in an advanced stage of rottenness. Of course, one trial is not sufficient to test the matter for certain; but from numerous experiments I have made with these fumes I believe they will kill the spores of foul brood or any thing else if they are subjected to them for ten hours in an air-tight box. Perhaps much less time would suffice. I see from experiments made at some of the State experiment stations that these fumes will also kill or impair the vitality or germinating power of grain and seeds. Now, if these fumes will kill the spores of foul brood by their use, the disease can be cured with less than half the work and expense of the most approved methods practiced at present; for, as I explained in the article referred to, a tank could be made large enough to hold a number of hives at once. If there were many colonies affected, only a few extra hives with frames would be necessary, as the infected hives and combs could, after treatment, be used for the second change. These fumes do not injure the combs or frames at all; and to disinfect combs or hives by this method, all that is necessary is to place them in an air-tight box, or one as nearly so as possible, with some of the carbon in an open dish so it can evaporate. The amount to use would not matter, so there is enough, as any that did not evaporate would be just as strong or good to use the next time.

Perhaps if their attention were called to the matter by this, some of the scientists among us who are able to handle, cultivate, and propagate the germs and spores of foul brood will subject some of them to these fumes for ten hours or so, and let us know whether it kills their vitality or germinating power or not.

Southern Minn.

[I wish some of our friends who are troubled with foul brood, and who are "given to an experimental turn of mind," would test the bisulphide treatment of friend Davenport. The only item I think it would save would be the comb. The bees, of course, during the interim of fumigation, would have to be in some other quarters. By the McEvoy treatment there are no acids, no fumigation, and no scalding of hives; indeed, the bees are put right back into the same hives; but the frames, combs, and brood are destroyed. By Mr. Davenport's fumigation method, the brood will be destroyed, but the comb and frames will be saved.—ED.]

BEE-PARALYSIS A LA WALKER.

Going without Breakfasts Beneficial; the Average Weight of Combs.

BY O. O. POPPLETON.

On p. 625, Sept. 1, 1897, Mr. Walker tells of curing bee-paralysis by running swarms from his diseased colonies into hives from which healthy swarms had issued. His bees must have a peculiar form of the disease. I have never had a diseased colony cast a swarm. Again, many colonies seem to get well of themselves late enough in the season for swarming to take place, especially those that are affected so lightly as to be anywhere near in swarming condition. I hope to see the Monnier cure prove successful; but Mr. Walker's method of mixing swarms is very little proof of that fact. What I want is a cure that will work earlier in the season than swarming-time.

On p. 823 are some comments on the healthfulness of going without breakfast. While living in Cuba we had to adopt Cuban ways in living—that is, breakfast at 9 or 10 o'clock; dinner at 3. This was so satisfactory to us in point of health that we continued doing so for years after returning to the States, and gave it up only because of the inconvenience of having our meals at different times from our neighbors. Our experience was much similar to that of your Australian correspondent.

I was glad to see Dr. Miller (p. 876) catch you up on that "10 lbs. of honey in a frame" statement of yours. We see a great many loose or careless statements of weight of honey in hives and supers; and while I have never weighed full supers I have weighed hundreds of full combs, and doubt whether any super holding 10 Langstroth frames ever contains over 50 lbs. of honey. Your estimate of 75 lbs. as the weight of a full super, including hive-body, frames, and combs, is probably too high.

On p. 124, both Dr. Miller and yourself seem to have had no trouble with the heads of spacing-nails catching in the wire cloth in extractors. I have used spacing-nails for over 25 years, and, with the old style of extractor, had no trouble either; but I do have trouble with the reversible extractor. The narrow baskets give less space for handling the combs, and the nails very frequently catch, and both—

er. This is especially true when some one else is running the extractor besides myself; but they bother me too much. The small $\frac{3}{4}$ -inch fence-staples would be all right if they didn't split the frame in driving. Your new spacing-staple is too broad to enter the wire-cloth meshes, which, of course, can not be tolerated; but while in your workshop in Medina a year or two ago I saw on your bench just the thing—a wire staple made of very small wire and small bend. I inclose one so you can see what I mean. They answer my purpose perfectly.

On p. 138 Mr. Doolittle discusses the old question of the honey-gathering qualities of the golden Italians, dark ones, or hybrids. He thinks the "true solution of this question depends on whether we are producing extracted or comb honey." I think he is only partly correct. The time of season when the main honey-flow comes is also a very important factor in determining which will be the best bee for any one of us individually to keep. I am referring to the production of extracted honey only, not to comb honey. My keeping bees in such widely differing conditions as prevail in Iowa, Cuba, and Florida, has taught me many things that I should have given little attention to had my work been confined to one locality. Italian bees, especially the more uniform lighter-colored ones, seem to have the storing instinct more fully developed than the hybrids. Whenever the honey-flow is heavy, either early or late in the season, they devote their work to storing honey at the expense of brood-rearing, while the hybrids, early in the season, retain more of a disposition to raise brood at the expense of honey-storing. Later in the season there is much less difference in this respect between the two kinds of bees. Thus, if one is in a locality where the main honey-flow comes early in the season, like most white-clover localities, the yellowest and purest Italian bees we can get will give the best results; at least, such was true with me in Iowa. If the main honey-flow comes later in the season, say in July, as it does with Mr. Doolittle, the hybrids will do fully as well. If the flow is very late, like that from buckwheat and goldenrod, I should prefer hybrids, possibly even blacks. In both Cuba and Florida I have had much the best satisfaction from hybrids—better than with either of the pure races.

Stuart, Fla., March 14.

[In the few cases where I have seen bee-paralysis in the North, I have never come across one yet where the colony seemed vigorous enough to cast a swarm. My experience has been more in line with your thought, that the bee-paralysis Mr. Walker reported was either not bee-paralysis, or something a little out of the order of that disease.

I believe the majority of people of sedentary habits, or those who do not perform hard labor, would be better off with two meals a day than three. But a laboring man would hardly be able to get along without three meals; and even then I know that many of them say they are "mighty hungry when the next grub time comes around."

Yes, Dr. Miller did catch me up, but I thought I crawled out of my hole pretty gracefully, especially when I said that the combs on which I based my estimate of 10 lbs., of years ago, were spaced $1\frac{1}{2}$ inches from center to center. You remember I did find some combs spaced $1\frac{3}{8}$ from center to center that weighed $8\frac{1}{2}$ lbs. Still, 5 lbs. is a fair average, taking combs as they run.

So you think that my 75-lb. estimate for a full super was probably too high. Don't forget that I was talking about those "awful heavy supers," the regular back-breakers. Every comb was filled out solid with honey, and as such run over 8 lbs. in weight—say it is $8\frac{1}{2}$ —it makes 68 lbs. That leaves only 7 for the weight of super and cover. There, don't you see how I get my 75 lbs., especially when I set it as the extreme limit? We have had supers more than once at our out-yard that were crammed in just the way I speak of, and they were regular back-breakers, I tell you; but it would be more exact to say that, on the average, extracting-supers would run between 40 and 50 lbs., counting that the super was 8 frame, full size.

When we last fall adopted spacing-staples, we placed them just far enough from the end-bar so that, when the frame was placed in our regular extractors, the staples at both ends would just "clear" the wire cloth and its binding at both ends. We make our comb-pockets quite a little shorter than the length of the Langstroth frame.

With regard to hybrids for late flows of honey, your experience would agree very well with that of the York Staters. Like the rest of us, they have a white-clover flow, but, unlike the rest of us, later on in the summer they have buckwheat—thousands and thousands of acres of it. I do not think I saw an apiary of pure Italians anywhere in York State, except at Doolittle's and Salisbury's. Hybrids are used because they are less trouble to raise, and because they are no doubt better for buckwheat.—Ed.]

HIVES ON FOUR BLOCKS.

The Pettit Method; the Divider and the Fence; an Objection to Deep Entrances.

BY JAS. CORMAC.

Reading your comment on one of Dr. Miller's Straws, where he remarks that an entrance of $\frac{7}{8}$ inch the whole width of the hive is not enough for him, and that a chance for a current through is needed, I would say that, from my point of view, the doctor is, as in most of his remarks as to changes and improvements, in accord with my experience, except as to T supers. Having practiced the placing of blocks under each corner of the hive, to give ventilation, I find it is an improvement during the heated term; but, unless one's attention were given to their removal at a time when the honey-flow ceases suddenly, trouble might ensue that would set the whole apiary wild on account of robbing.

Last season the Pettit method was tried,

wedges being used, $\frac{7}{8}$ inch at the thicker end, giving $1\frac{1}{4}$ -inch entrance. But this required a new lot of entrance-blocks of the same width. All said, "Too many fixings to care for." To obviate this difficulty a contrivance made of heavy galvanized iron was attached to the front of the hive, which can be kept on at all times, and is handy for several purposes—in closing the entrance when taking hives into the cellar, closing the entrance when cold days come in the spring, or any time. This attachment can be used on each end of the hive, and closed quickly, leaving the hive raised at any height from the bottom-board one desires.

This mechanism will answer your query as to the "smart Allick." A strip of galvanized iron, as wide as the entrance is deep, 13 inches long, with two strips of same $\frac{1}{2}$ inch wide, is attached to the front of the hive. The two small strips $\frac{1}{2}$ inch wide are riveted to the long strip (about 8 inches apart) at right angles. The rivets are not driven hard enough so but that there will be a little play. This long strip is then set before the entrance of the hive, and a nail is driven into the free ends of the two short pieces in the hive-front. The end at left hand is flush with the outside of the hive, and the right-hand end with the inside, so that, when moved toward the right to open the entrance, the strip will not project far out. The right end is bent $\frac{1}{4}$ inch at a square angle, to allow a hold to move the slide. By riveting the short strips to the inside of the long one they lie flat on the hive, and, when nailed with a $\frac{3}{4}$ -inch nail, will hold this guard at whatever point placed. To enlarge the entrance, move to the right.

I have been much interested in the fence discussion, having tried the Pettit system on over 50 hives last season, with fence and holes $\frac{3}{8}$. A pile of sections pressed between two boards were laid off in small squares, and then bored with a new $\frac{3}{8}$ bit, the holes dodging like a checker-board. The fence was $\frac{5}{16}$ between strips, and gave ribbed combs. The holes gave perfect combs, smooth as between separators of usual pattern.

One thing against the large opening: When a swarm went out it went with a whiff, like the exhaust-pipe of a locomotive. I found the clipped queens about three feet from the entrance, and many bees too young to fly. On one occasion a swarm came off that had superseded the old queen (as all were clipped in spring); and before they had time to cluster, two more shot out like a powder charge from a gun, without waiting, joined the first, and clustered on an out-hanging branch of a large elm, 35 feet from the ground. I jarred them off with a long willow pole, with a hook in its end over the limb. But few reached the ground, as they regained wing. Several attempts failed; so you may conclude that a stone, with rope attached, thrown over the limb on which a cluster hangs, will not always be effective. A mere handful may reach the ground. In taking hives resting on wide bottom strips into the cellar with this device, there is no need of turning the bottom over. Shut the hive with the adjustable entrance-

slide. When in the cellar, open on both ends, and cut, from a roll of $\frac{3}{8}$ -mesh wire, strips $1\frac{1}{2}$ inches wide and 16 inches long, bent one inch on each end to clasp the hive-sides. This method secures plenty of air-space for dead bees; also freedom from mice around the bees. The cost is merely nominal per hive. Small rivets, $\frac{1}{16} \times \frac{1}{8}$ long, cost per 1000 25 cts., and all tinsmiths keep galvanized iron.

Des Moines, Iowa.

[Yes, indeed, any one who makes a practice of raising a hive up on four blocks, to secure better ventilation, for the purpose of discouraging swarming, must "look a leedle oud" when the honey-flow stops—that is, providing he uses one-story colonies. A good strong colony—a double or triple decker, such as I would use and do use—I think would be fully capable of holding their own. No little colonies for me.]

So far as I know, all reports go to show that, when the slats of a fence are spaced as far apart as $\frac{5}{16}$, ridge comb honey is pretty sure to be produced. I have yet to hear of an instance, however, when the slats were spaced as scant as $\frac{1}{2}$, that there was any washboard surface on the honey. If there is any such instance, let the brother hold up his hand, and at the same time send a sample of the honey and of the fence that did the work. If the slats, however, were too narrow, say $\frac{1}{2}$ inch, I am of the opinion that, even if they were spaced $\frac{1}{2}$ inch, a critical eye would detect a slight ridging. When we adopted our form of fence we did a great deal of corresponding, asking the opinions of those who had tested the fence during the years gone by; and the result was that we fixed upon the style that we have illustrated.—ED.]

THE DISK SECTION-CLEANING MACHINE.

Conditions under which it may be Made to Work Satisfactorily; High Speed and Power Necessary.

BY JAMES ROAT.

In the Feb. 1st issue of GLEANINGS you illustrate the Aspinwall section-cleaning machine. I have used for the past two seasons a machine somewhat like his. It was invented in 1895, improved in '96, and the past season I cleaned the bulk of my crop with it. It is simply a disk a little smaller than the sheets of sandpaper which are to be used on it. The disk is made of two boards placed with the grain of one crossing that of the other at right angles, and the two firmly screwed together to prevent warping. The disk is then screwed on the threaded end of a shaft (the end of a saw-mandrel will answer when the saw is at the end of the shaft). Then revolve the disk by running the shaft, and turn it perfectly true with a chisel as in a lathe. Make the face a trifle convex, as it will work faster in removing small spots than it would if perfectly flat. The disk should be run at least 3000 revolutions per minute, and faster would be better, as the sandpaper does not clog as soon when the machine is run at high speed.

As Ernest has lately mentioned in GLEANINGS, we have a great deal of propolis in parts of New York, and our locality is one of those parts. I can not clean badly daubed boxes without first removing the bulk of the gum with a knife, as three or four sections covered with sticky fresh propolis would clog the sandpaper. When the propolis is perfectly dry and hard it can be sandpapered successfully, but not when fresh.

Formerly we considered 100 sections a day's work—that is, they were scraped with a knife, and then all stains were removed by scraping with glass. Some of you may smile at this; but if you could see our honey before and after cleaning, perhaps you would have some idea of the job.

With the machine, I can clean from two to three times as many, and do it easier and better. I have two machines—one for foot power and one for horse power. I would not advise any one to make one for foot power, as it is so hard to maintain the high speed. One sheet of sandpaper will clean about 70 sections; but I have scraped as many as 140 with a single sheet. In localities where there is little propolis it would work better than here, as you can easily clean a section a minute.

The sandpaper is bent over the edge of the disk, and fastened with four or five small tacks, so a fresh sheet can be put on in a moment.

Reed Corners, N. Y., Feb. 4.

[There, friend R., you have given us just the information we have been seeking. It seems, then, that the sandpaper will fill up with propolis; but occasional renewing and high speed, secured by power, obviate nearly all the trouble. This will explain *why* some have been successful with these machine cleaners, and some have not.

Another fact seems to be brought out; viz., that the hand and foot power machines, at least those that afford only a low speed to the surface of the sandpaper, probably can not be made a success. That means that they must either be speeded up or cast aside. May be we'd better write this down big in our hats before we do any expensive experimenting.—Ed.]

NOTES OF TRAVEL AMONG BEE-KEEPERS OF YORK STATE.

At Frank Boomhower's; Cutting Glass for Sections; Boomhower's Scraping-table.

BY E. R. ROOT.

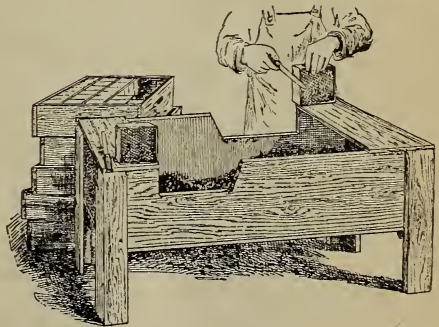
Along toward the latter part of the month of September I was circling about among the bee-keepers of Schoharie and Albany Counties, New York. As I made my way over some of the country, well did I remember how I had, seven years before, with a 52-pound bicycle, puffed and pushed over those same hills; but now, partly because the aforesaid hills scared me out, and partly because I wished to save time, my 25-pounder had been left in Syracuse, and I was speeding my way much easier and faster on the train.

Along one hot afternoon I found myself in front of the residence of Frank Boomhower, Gallupville, N. Y. As I knocked at the door of the workshop I wondered whether I should find my friend inside. Sure enough, there was Mr. B. and his twin boys, about 18 or 19 years old. The latter were scraping sections while the father himself was cutting glass, for through that section of country, at least, a very large part of the comb honey is glazed.

After going through the formality of introducing myself, and getting acquainted, Mr. B. began at once to show me the kinks of the trade. When I came in I noticed he was cutting glass, or, rather, breaking it up, in a little different way from what I had seen before. With a good diamond he marks the several sheets off into checker-board squares, as it were, the squares being of the same size as is required to cover the face of the section. Several of the sheets are marked off in this way, after which they are piled one above another, but so as to bring the crease-marks made by the diamond directly in alignment.

Mr. B. now takes up the pile of glass in *both hands*; and, holding one set of crease-marks directly over the edge of a box, he brings the glass down with a smart rap *en masse*, and, presto! every sheet is severed in a straight line at a crack. He then moves the bundle of glass along to the next crease, and gives it another crack, and away goes another handful. After the glass has been divided up one way he turns the glass round at right angles, and gives it another crack along one of the scratch lines. So on he proceeds until the whole bunch of glass is broken up into squares, and as quickly and nicely as you and I would break up one sheet at a time. I explained this kink to quite a number of bee-keepers, but they had never learned it, but promised they would try it at the first opportunity.

Well, after Mr. Boomhower had broken glass to my satisfaction I turned about to see how the boys scraped sections. Here is their table.



BOOMHOWER'S SCRAPING-TABLE.

The engraving will make its manner of construction plain. It is simply a common dry-goods-box, mounted on four legs. At each end a part of the cover is left on; and on each side, and flush with the edge of these side-boards, a notch is cut. As I watched the boys scraping, one on either side, I soon saw the

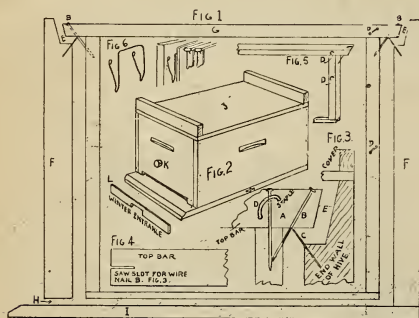
object of the aforesaid notches. A section is set down in position indicated in the drawing, with one side projecting *slightly over* the notch in the side of the box. The knife makes one sweep, sliding *clear past*, down into the notch, sweeping the scrapings into the box. The section is then reversed, and the other side is treated in like manner. Last of all, the edges are gone over. Within convenient reach of the boys were a pile of shipping-cases that were being filled. As soon as a section was cleaned it was set down into the case, and then another was taken from the super just as it came from the hive, this super being also conveniently in reach, as shown in the illustration. The work is so arranged as to make only one handling; and, if I remember correctly, the grading was done at the same time. There is one case for first quality, another for second, and so on.

After I had watched the boys crate, looking over toward a pile of hives I said:

"Is this the Boomhower hive?"

"Yes," said Mr. B., "and it is the most convenient hive I have ever had."

Then he went on to tell me how he had experimented with the various kinds of hives and brood-frames, sometimes changing over his whole apiary. All this experimenting had cost him hundreds and hundreds of dollars; but now he has got through. He had found the *ne plus ultra* in brood-frames and hives. He has tested them thoroughly, and the more he tested them the more he liked them. He could handle his brood-frames any time without a screwdriver. They were of the self-spacing type, always ready for moving, and always easily pulled out of the brood-nest. "Why," said he, they beat your Hoffman frames all to smash. My neighbors who have been using the Hoffman have discarded them for my frame."



Nearly a year ago (May 1st, p. 334) we gave an illustration of this hive and frame, and for the convenience of our readers I reproduce it here. The hive is of the ordinary eight-frame Langstroth type; and, so far as the hive proper is concerned, it differs but little from the ordinary eight-frame Langstroth. But the particular feature of the hive is the brood-frame and metal rabbet. This last is a narrow strip of sheet iron let into a saw-cut as shown at C in Fig. 3. He used spacing-staples between the sides of the frames as shown

in the illustration; and a nail driven through the projection of the top-bar on a slant into the end-bar prevents end play, for the top-bar itself is shortened on both ends so as to leave a bee-space, as at E, around the ends, and thus do away with the gumming of the ends to the hive-rabbit itself.

The staple-spaced frame that we introduced lately is a good deal after the same style; but Mr. B. considers his end-spacing nail better. I could not see it just as he did, but he says he has tried both ways, and says he knows the nail is better. Since that time Dr. Miller, who has tried both ways, has decided in favor of the staple.

I found Mr. Boomhower to be a man of practical ideas, and very decided in his opinions too; and while I could not agree with him on all questions, yet from his standpoint he gave very good reasons for his preferences.

In our next issue I will say something further about him, and also about the greatest buckwheat country in the world, for friend B. is in the heart of that region that produces millions of bushels annually. I will also introduce you to his son Novice, one of the lightning operators.

METAL-SPACED HOFFMAN FRAMES.

Minnick's Hive-stand; Open-corner Sections.

BY JAS. A. MINNICK.

I am glad to note the interest that you take in metal Hoffman frames, as designated in your editorial on pages 57 and 58. Mr. Marks' frame is substantially the same as mine (a sample of which I send you by to-day's mail), except he has the metal both on same side of frame instead of diagonally opposite, as in mine; he also uses iron while I use zinc; and his metal pieces are twice as wide as mine; also, he uses a *wood* projection for top-bar that I *could not* be induced to use. I prefer the nail projection so much over the wood that I have sawed off the ends of nearly all of my Hoffman frames that I bought of you, though they have no metal spacers. This nail is allowed to project far enough to just touch back of tin rabbet, as you make them. They *can not* be glued to it as the wood projection, nor does it smash the bees, and they are "cleared out" of the rabbets by the time you set your snoker down.

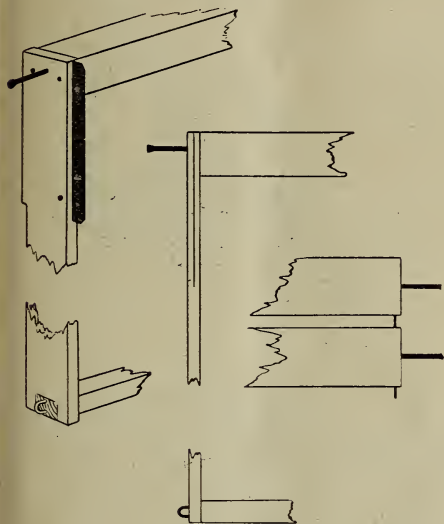
I have about 500 brood-frames and 100 extracting combs of my own make, with the nail and metal bearing, that I made on a foot-power saw. I make only for myself, and it is not patented. It is so good I wish all bee-keepers knew of it.

If you will turn to page 249 of *American Bee Journal*, April 18, 1895, you will find a good description of it in detail. In that article you will find that I prefer the wood rabbet. After some years of experience I find that I like your tin rabbet better.

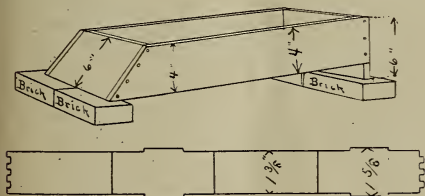
I like your new hive-stand as per last GLEANINGS, and think it is very cheap. Herewith please find a sketch of a stand that I have made and like better, as it elevates the

rear of the hive two inches. I had some old oak fence-boards 6 inches wide that I cut the right length, and I use cheap pine $\frac{3}{8} \times 4$ inch sheeting for the sides. The cut fully explains itself.

I have been studying the new fence, no-bee-way sections, tall sections, etc., with great



interest. I think I might like a tall section pretty well, but will not change my supers this next season; but I don't think I want the fence, or any separators for that matter, as about half of my last-year's crop (a ton) was put up in a $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{8}$ white-birch section that I got of W. H. Norton, of Skowhegan, Maine (I send you a sample of it to-day). I used no separators, and will this year use them (sections) almost exclusively on 54 colonies. There are *very* few crooked combs; the honey is always white, and the bees will go up into supers *much* quicker, and they are so much quicker scraped.



In the sample I sent you to-day you will find one of the sides (it is a four-piece section) is marked A, and is cut away so as to leave only a two-inch bearing, and I should like to get some that way, as it *will* practically do away with the pop-holes in the corners of sections; 12 sections of the above always weigh more than 12 of the old $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{3}{8}$, and always look better.

Mr. Marks says that hard wood is better for sections, etc. I think he is right. Try soft maple if you can't get the white birch. The birch is tough, and would make a first-

rate one-piece section. Find inclosed a rough diagram of "proposed one-piece section." I should like about 4000 this spring, as per diagram.

Please examine this new section carefully, and say if you can make it in a one-piece form; also if you can get the birch.

Anderson, Ind., Jan. 20.

[Your nail-supported frame is very much like that shown on page 336 of GLEANINGS for May 1, 1897, by Adrian Getaz. The latter uses a nail to support the frame, as you do; otherwise his frame is the same as the Hoffman. You have combined the Marks metal-spaced Hoffman and the nail of Getaz. In regard to the last feature, I will say that, as I said then, I personally have tested it, and have found it wanting. It has too small a bearing in the wood to support a frame filled with honey; and consequently the hole, by the continual weight, is liable to assume an egg shape. This will result in having some of the top-bars up to the required height and some below, causing irregular bee-spaces. Then, moreover, if the nails are not driven exactly in the same position, or if they should be driven a little bit on a slant, it will result in the same irregular bee-space.

The metal-spaced Hoffman is all right; and I should not be surprised if it would some day displace the regular style of Hoffman in use to-day. Take that same frame, as illustrated above, and let the top-bar project far enough in the regular way to catch on to the rabbet and yet leave a bee-space around it, and you will have, in my judgment, an excellent frame.

I do not exactly see the need of supporting the hive-stand on bricks. Who cares if the bottom edges of the stand do rot a little? They will even then last ten or fifteen or possibly twenty years; and four bricks to every hive would make some little expense, especially if one were to so equip several apiaries. The scheme of raising the rear end of the hive up is good.

The section-blank shown is practically the same as was first brought to the notice of the bee keeping world by Walter S. Pouder, some 10 years ago (see GLEANINGS, page 514, 1888), and later on by our irrepressible friend Francis Danzenbaker. The scheme of giving the bees wide passageways from one section to another is tiptop, and that is one of the reasons, if not the principal one, why honey seems to be better filled out in Danzenbaker sections.

Yes, hard wood may look nicer, but it is much harder to cut, and would make sections more expensive.

Mr. Marks, by the way, believes that it is almost a sin for the manufacturers of bee-supplies to cut up basswood into section honey-boxes, on the principle that it is folly to kill the goose that lays the golden egg; but, as I have before pointed out, the amount of basswood that bee keepers annually use is a mere drop in the bucket compared with the amount used by furniture-manufacturers, basket-makers, and manufacturers of novelties in general. —Ed.]

CAPTURING A RUNAWAY SWARM.

How to Get a Swarm from a High Limb of a Tree.

BY G. C. GREINER.

In *Stray Straws*, Jan. 15, Dr. Miller speaks of throwing a stone, with cord attached, over a high limb to bring down a swarm of bees, to which the editor adds his usual interesting notes. I have tried another way to accomplish the same result, which I think is applicable in at least some cases where the stone-and-cord plan will not work, and do it in much better shape. The following description, with accompanying illustration, will explain the *modus operandi*.

A year ago last summer I had a swarm of bees leave their hive, after being hived three or four times, and go to the near-by woods. They stopped at the first tree they came to, a tall beech, well limbed to within 15 or 16 feet

of the ground, and clustered on one of the highest limbs, some forty feet from the ground. (Sec. A, of cut). At first I considered the place beyond my reach, or at least I did not deem it prudent to risk human life for the sake of capturing a few handfuls of bees, and decided to let the erring sisters go in peace. A second and closer investigation of the prevailing conditions, howev-

er, made the undertaking appear quite feasible, and I proceeded in the following way:

By means of an 18-foot ladder I could reach the lower limbs, and from there I climbed, with saw in hand, from limb to limb, until I reached the place, B. Here the limb with the suspended cluster joined the main body; and by standing on this limb, and supporting myself with one hand on a higher one, I sawed into the former until it began to show plain signs of weakness. I then laid my hand against it as far as I could reach above the saw-kerf, and with a gentle push could give it a downward motion. When nearly level I had to change my help in the opposite direction. The little connection which I had left when sawing had not the strength to support the limb in that position; and if given its freedom then, it would have dropped down with a crash, and, undoubtedly, would have made sad havoc with the bees. To prevent this I stepped on to a lower limb, from which I

could support the moving limb sufficiently to let it descend gradually to its perpendicular position. In this I succeeded so well that hardly a dozen bees took wing in the whole operation. They simply changed from one angle



to another. After that, hiving was an easy matter. By standing on the lowest limb I could just hold my hiving-box under the cluster (see illustration), and, with a sudden jerk, lodged them in the box. The box was then hung on the limb right under my feet, and, keeping up a continual joggle, as the editor says, for a short time, I soon had the swarm quietly settled in the box. From the ladder I had easy access to the box, so that the final transfer to the hive was the work of a few minutes.

Naples, N. Y.

[Your plan will work well providing the tree does not happen to be a beautiful shade-tree on a front lawn, or, worse still, in the yard of a neighbor. Bees seem to have a fashion of clustering, in most cases, on trees around the house — such trees as we generally do not like to mutilate.

While I was at the home of W. F. Marks, Chapinville, N. Y., he showed me a locust-tree in the rear of his yard, at the top of which was a limb some 30 ft. above the ground, where a swarm clustered. Not knowing whether or not he might dislodge them he took his shotgun and "let drive" two charges right in the center of the cluster. It stirred things up a little, and, I believe, resulted in the bees abandoning the limb and clustering lower.

If one were an expert marksman, and the bees clustered on a limb no larger than one's finger, he could, with a rifle, bring limb, bees, and all, down.

Some few years ago, while out hunting, I coveted an oriole's nest which I saw overhanging the water. It was impossible to reach it, but, drawing up my rifle, I "drew a bead" on the limb where I desired it cut, and, crack! down came the limb, cut off almost as smoothly as it could be done with a well, a dull knife. I do not suppose I could have done the thing again, even if I had fired a dozen times. But it occurred to me that one might, with a large enough bullet, thus bring down a swarm not otherwise accessible.—ED.]

AVERAGE YIELD FROM 200 COLONIES.

Relative Values of Different Locations.

BY M. A. GILL.

In the *American Bee Journal* of Dec. 23d the question is asked, "What would be a fair average honey crop with an apiary of from 200 to 300 colonies, located in Central or Northern Illinois?" I have read and reread Dr. Miller's answer; and while I should fear to "lock horns" with him on any subject I feel inclined to raise his yield at least 20 lbs. per colony. He says the yield would no doubt be 20 lbs. less than nothing.

Does not the doctor make his estimate from the poor seasons which are still so fresh in the memory of most of us? He says that 75 or 100 colonies might give a surplus of 35 lbs. per colony. I can not see why Illinois should be so much different from Southwest Wisconsin, for I have noticed, while traveling through Illinois, that it excels Wisconsin for sweet clover; and right here I want to go on record as saying that *no* plant equals sweet clover to fill in all gaps, and piecing out the honey-flow to late in the season.

I know of many locations in Wisconsin where 200 or 300 colonies would have not only made a living, but given a fair surplus for the past twenty years, with the possible exception of three years; and during those years of scarcity twenty colonies would surely have to have been fed.

It has been my experience, that, when there was a dearth of honey in a *good location*, it would affect twenty colonies nearly as much as two hundred; hence I can not think that the best locations, even in Illinois, will not carry 200 colonies for a term of years without being fed. I am not saying that it would be the most profitable thing to do; but I want Dr. M. (whom we all look up to as an oracle in bee-lore) to either raise his yield or the number of colonies which he says can be kept in a good location in Illinois.

I am now going to give you some figures, and you may have to appoint some one to help the doctor believe them, for you know it is often said that it takes "two easterners" to believe one "western story." I want to say to the doctor that the next time he wants to refer to some locality where a large number of colonies are massed on a small amount of territory, he doesn't have to go away off to Australia or California, for he can find such places here in Colorado or Utah. But, remember they are not located under the dry ditches that friend Aikin so graphically describes in GLEANINGS (and which every whit is true), but they are located where there is an abundance of alfalfa, and where the canals, ditches, laterals, and waste places are covered with sweet clover, and still it is hard to find a location where from one-third to one-half is not barren desert, and, with the exception of a little early pollen, would furnish no more bee-pasture than a barn-floor. Utah Co., Utah, is reported to have 30,000 colonies of bees, and you would be surprised to see what a small portion of the county is under water.

In the little city of Payson (in Utah Co.) and its suburbs, and on less than two miles square, are 3000 colonies of bees. My friend Thos. M. Todd owns 200 of the 3000. Last year his yield per colony was over 200 lbs. of extracted honey. This season he procured 140 lbs. per colony, one-fourth comb honey.

On one block in the town of Benjamin, three miles from Payson, are 500 colonies; and clustered close around him are as many more. The 500 situated on the one block gave this year 1600 24-lb. cases of comb honey. The Utah fellows call their honey lucerne (their name for alfalfa); but in my opinion, if the sweet clover were taken away they would have to keep fewer bees or move them farther apart.

Now, if it takes more than you and Dr. M. to believe the above I wish to introduce to you my good Presbyterian friend Mr. Thos. M. Todd, of Payson, Utah, who will act as sponsor for the above figures. I see I used the term "under water." This means the lands that are irrigated. The lands that are above water are desert, and furnish no surplus honey as a rule.

Grand Junction, Col., Jan. 6.

CALIFORNIA FOR CONSUMPTIVES.

Not the Most Favorable Region in the World for that Disease; Some Interesting Facts for Health-seekers.

BY A. NORTON.

Friend Root:—I feel like adding a little correction, if it may be so called, to what Mr. Hambaugh says about the healthfulness of California, especially for such things as a tendency to colds and lung troubles. I say, for a *tendency* thereto; for, when the trouble has once developed into the confirmed dominance of bacilli, I believe it will take a higher power than climate to heal. But it is easy to be mistaken, and mislead, and to think that the whole of a State is just like some portion thereof. This is not the case anywhere, even in California. True, this is a wonderfully mild, soft climate, the whole length and breadth of the State; yet people born here, or for a long time residents here, take consumption, etc., and die the same as elsewhere. I doubt whether Mr. Hambaugh has settled in a really ideal place for lung troubles. I know that experienced and skilled physicians of this section, in prescribing change for such troubles, have not favored it. One requisite for lung troubles is altitude (3000 to 5000 ft., according to the state of the trouble), and another is dryness of air. The coast line of the State doesn't furnish either (see exceptions later). True, the California coast is better than the Atlantic coast or the Mississippi Valley, because evenner and dryer. For instance, in summer, in spite of fogs, the air of San Francisco averages only 28 per cent of saturation point, while in New York and Philadelphia it is 75. Hence, those coming from the East, even to the coast, find great relief, at least for a while. That just the change itself

may account in part for this, the following example will illustrate:

I knew a young man in Salinas of this (Monterey) county, who was far gone with consumption. Salinas is near the mouth of Salinas River, only ten miles or less from Monterey Bay, and only 50 feet or so above sea-level, with uniform but moist climate. This young man was taken, when life apparently couldn't last much longer, to an inland elevation in the county, of over 2000 ft. altitude, and with dry climate. He improved wonderfully and marvelously, and lived there two years. Then he went into the same decline. He was removed to Denver, Colorado, where the same rapid apparent recovery took place, and was followed in a year or so by the inevitable decline again. He was then brought home to low, moist Salinas again, as all thought, to die speedily. To everybody's surprise, however, he picked right up again as he had with each of the other changes, and finally, after two years, some of it spent in comparative comfort, he died at home.

The location I mentioned in connection with Mr. Hambaugh is, as I take it, in the low land around Los Angeles. I have known doctors to discourage patients from going anywhere there. But all along the Coast Range, especially south of San Francisco, are many dry, sheltered locations with sufficient elevation, and with such delicious, balmy air as simply can not be described. These regions are generally well covered with bee-pasturage, and make fine locations for apiaries. I remember one case of a young man who came to San Buenaventura with consumption in 1884, hardly hoping to recover. He was weak and languid. But in a few weeks he was working in one of Mr. Wilkin's mountain apiaries, getting stronger continually. He got his health again, married, and, so far as I know, is still alive and hearty. I know of a similar case in the mountains of Santa Cruz Co.

The Sierra Nevadas furnish perfect summer conditions; but the winters there are too severe and trying. The southern portion of that range is, of course, more favorable than the northern part. Nevada, Utah, and Colorado are not to be excelled for summer residence (only four or five months), and are cold during winter, with much danger from pneumonia. Southern and Central Arizona, though not so elevated, are very dry and generally equable, winter and summer, with alfalfa regions that make good locating-points for apiarists.

But if a person with weak lungs chooses the coast mountains of the southern half of California (south of San Francisco, in other words), he will be pretty sure to find plenty of delightful localities to choose from. He could find fine climate in abundance north of San Francisco, but would not be always sure to find good bee-pasturage. One or more ranges inland of the many parallel ranges are always safest.

Monterey, Cal.

[Partially in corroboration of what friend Norton has said, I might mention that one of

our townsmen, far gone with consumption, went to California. Within a month after arrival he experienced great relief, and in two years he seemed nearly cured; but in about a year more the disease came back, and he finally died. An uncle of mine, Mr. Marshall S. Root, contracted the disease on the coast. The doctors all advised him to leave California and go back to his own home here in Ohio, where it was colder. He did so, and the change was beneficial for a time; but after he became acclimated, the disease began again and he finally died. It is true that change, no matter where one goes, often gives relief. —Ed.]



COMB AND EXTRACTED HONEY; STRONG COLONIES FOR EXTRACTING, AND NO INCREASE; HOW TO PRODUCE COMB HONEY, AND INCREASE.

Question.—I have 110 colonies of bees, and intend to work for both comb and extracted honey the coming season. I allow natural swarming, and have enough extra brood-combs on hand to fill 75 eight-frame hives. Forty of the colonies are in ten-frame hives, and 35 of these will be used for extracted honey. They will have to build a good part of the combs to be used in extracting from foundation, as I use combs only $5\frac{1}{2}$ inches deep in the extracting-supers. Our surplus comes from white clover, which begins to yield honey about June 10th; then basswood, which blossoms about July 3d, lasting about ten days; and, lastly, from goldenrod, which begins to yield honey the latter part of August, and continues nearly through September. My principal trouble has been swarming during the honey-flow, this interrupting work in the supers. Supposing the above to be your case, how would you handle the bees so as to secure the best results? An answer in GLEANINGS would be esteemed a favor.

Answer.—In the first place, I should not expect to "allow" many, if any, natural swarms from the colonies that were worked for extracted honey; for I believe more extracted honey can be obtained where the colonies have no desire to swarm than can be by any plan which inclines the bees to swarm. Mr. Quinby told us years ago, that, if a colony were given from 5000 to 6000 cubic inches for a hive, and this space were filled with comb, such a colony would not be liable to swarm; and in all of my operations with bees I have found Quinby to be very nearly correct on this point, and especially so if the honey is extracted from the combs not occupied with brood as soon as the most of it is sealed over.

Now let me digress a little. Why do you wish to use combs for extracting purposes, only $5\frac{1}{2}$ inches deep? I have never been able to see any particular reason for using

combs of any other than the same depth as the brood-frames, for extracting purposes. I know that a few of our advanced bee-keepers do use combs in the extracting-super, of a different size from those in the brood-chamber; but what few reasons for such a course have been given seemed illogical when viewed from my standpoint. Therefore, as you have asked me how I would handle those bees to secure the *best* results I can only reply that I would use those extra combs you say you have on hand on those 35 colonies I expected to work for extracted honey; and if the honey is extracted from them as soon as it is ripe, this will do away with all swarming on the part of the colonies worked for extracted honey, and, in my opinion, secure the best *possible* results from them. But I can tell you how you or any one else can prove whether Doolittle or any other writer is right or wrong when his teaching is applied to your wants or locality. Just try the plan advocated, on a part of the colonies, using your former plans with the rest, and this will prove the matter to your entire satisfaction. If the *new* plan proves good, then prepare to work the whole number of colonies that way. If it proves not so good as the plan or plans you have been using, then drop it, adhering to your old plans till you strike on something better. By doing this you may go a little slower, but you will go much more surely.

Now about that part worked for comb honey. I should certainly try a part of the colonies with the plan I gave in my department in GLEANINGS for January 1, 1898, unless I were anxious for increase, and I would try two or three colonies in this way, did I wish increase, so as to "get my hand in" against some time when I had all the bees I wished to keep. Then I would try another part in the following way:

Take a hive having eight of those empty combs in it and place it upon the stand of any populous colony which you have reason to think will swarm in a few days, when the sections are to be taken off and placed upon this hive of empty comb. Now shake and brush *all* the bees off their combs down in front of the prepared hive, into which they will run as fast as shaken. After the combs are out, shake all the bees out of the hive, if any adhere to the sides of it, so that all of the bees from the populous colony will be in the new hive together, thus having the queen, bees, partly filled sections, etc., so as to make a colony with no desire to swarm, ready for business at once. Previous to this, nuclei should have been started, so you will have plenty of laying queens to use as you may need them. Now take all the combs from which the bees were brushed, except one, and arrange them in the hive, carrying it to the stand of another populous colony. Next take the comb of brood which was left out and go to one of the nuclei, taking out the frame having the laying queen on it, and put the comb of brood in its place. Take the frame, bees, queen, and all, and set it in the place left vacant for it when arranging the combs of brood. Put on sections, and, when all is

complete, move the populous colony to a new stand and set the prepared hive in its place, doing this work at some time when the bees are flying briskly. Thus we have another colony with no desire to swarm (through our manipulation and its young queen), the same having a laying queen, and enough of her own bees to protect her; combs full of brood, and all of the bees from the removed colony which have flown to any amount, which makes a swarm ready to go to work in the sections in a few days. The removed colony has simply lost the field bees, so as to stop the swarming impulse, and in a week will be ready for the sections again, thus making three colonies from two old ones, all of which are in the best shape to take advantage of the honey-flow. If the harvest of honey is long drawn out, the colony last removed may swarm toward the close of said harvest; but with me, such is rarely the case. Should you wish more increase than the one colony from two, the nuclei can be built up to full colonies before the season closes. Or if no increase more than this is desired, then the nuclei can be used for the purpose of building frames of nice worker comb, which they will do with little or no cost, save the putting in and taking out of the frames as soon as they get another laying queen.

In bee-keeping it is always well to have two or three "strings to your bow;" and by thus having these different plans of working you can secure nearly as much fun as did the drummer with his *one* "string" fixed thus, as related by himself:

"Take a spool of white basting cotton. Drop it into your inside coat pocket, and, threading a needle with it, pass it up through the shoulder of your coat. Leave the end an inch or so long on the outside of your coat, and take off the needle. Four persons out of five will try to pick that thread off your shoulder as soon as they see it, and will pull on the spool until it actually does seem as though your clothes are all bastings, and that they are unraveling not only your clothes, but yourself. Fixed as above, I was at a theater in Boston on one occasion. It was in the most interesting and pathetic portion of the play. Everybody was rapt. I was sitting bolt upright, and didn't know or care to know a soul around me, when suddenly I felt something tugging at the basting cotton, that I myself had clean forgotten. I didn't say a word, and did not move. Foot by foot it unrolled. Half glancing around, I saw a woman—a total stranger—yanking at the thread. Her face was scarlet. She had pulled out about ten yards, and was now hauling in hand over hand. She didn't care to stop, because she had decorated my back and the whole aisle with basting cotton. She hardly dared to go ahead, for she did not know what portion of my domestic interior economy she was trifling with. Rip! rip! went the thread. Hand over hand she yanked it in. The aisle was full of it. 'For Heaven's sake! will it never end?' said she above her breath. I sat perfectly still and ran the spool while she pulled. How I wanted to yell! I never was

half so tickled before in my life. The whole section of the house soon got on to it. They didn't know whether to laugh at me or her, but sat and looked on amazed at the spectacle. At last the stranger gave one frantic pull and yanked out about eleven yards in one bunch; and as the cotton got twisted around her watch chain, over her eyeglasses, in her hair, and filled her lap, I turned around and, producing the spool from my pocket, said, 'I am sorry I misled you. You see I have about 124 yards left, but I presume that you don't care for any more to-night. I am honestly sorry, but I can't help smiling.' The woman was a modest sort of lady in appearance. Her face was as red as fire, even to her ears. She looked at me and then at the spool. She changed color once or twice; and when the crowd caught on, the laughter was so uproarious that I almost repented me that I had done the thing, because it placed both of us in a rather ludicrous light."



TO PAINT HIVES TO LOOK LIKE MARBLE.

Paint two coats of white paint in the usual way. While the second coat is fresh, hang up hive or super. Take a coal-oil lamp, light it, turn flame up so it will smoke, move it around so the smoke strikes the paint; use no flue. If carefully done it will be very pretty and will not show dinginess like white paint.

Anderson, Ind.

J. A. MINNICK.

VENTILATION IN WINTER; CATTLE OR BOX CAR FOR MOVING BEES.

1. My bees are in chaff hives; how much ventilation do they need, if weather is cool, as it is likely to be at that time of year?

2. Which is best for shipping bees—an open stock-car or box car? I ask this question because the open car is advocated by some; but I suppose they have reference to shipping in hot weather.

3. If ventilation is given the full size of the hive at top of brood-frames, and it should change to colder in transit, would not the brood be likely to become chilled, even though it were not cold enough to freeze?

WM. M. WHITNEY.

Garlo, Ohio, Feb. 15.

[1. Bees in chaff hives will need no more ventilation than is afforded by a full-width entrance that is not clogged up with dead bees.

2. If the weather is warm we would advise an open stock-car; if it is cold, a box car.

3. If the temperature outside is 60 or 65 there is not any danger of the brood being chilled. If it should run down to 50 outside, there might be some danger provided the colonies are not strong; otherwise, no danger.—ED.]

CANNING FRUIT IN HONEY.

You should add to the honey-leaflet, directions for canning fruit with honey. Last fall I canned peaches with clover honey, and they are the most delicious peaches I ever ate. I have canned apples and quinces, and they are just as good. Put fruit in tight-covered kettle or pan; set it in the oven; cook until tender; then add honey enough to sweeten to taste; bring to a boil, and can immediately. Do not cook after putting in honey; just let it boil up. Add no water or other liquid. One-fourth pound of honey to one pound of greenings or Newtown pippin apples is about right.

E. D. HOWELL.

New Hampton, N. Y.

[I wish our bee-keepers' wives would tell us more about canning fruit in honey—why it is as good as or better than cane sugar; how much honey, *i. e.*, the requisite proportion to a gallon of fruit. Then while we are about it let us pass the word around the world, and keep on passing it as long as we are bee-keepers and have respect for our stomachs, that honey is a much more wholesome sweet than cane sugar.—ED.]

GINGER COOKIES.

One cup granulated sugar; 2 cups honey; $\frac{1}{2}$ cup shortening; $1\frac{1}{2}$ cups sour milk; 1 tablespoonful of soda; 1 tablespoonful of ginger; 1 teaspoonful of salt, and enough flour to roll out good. Put the sugar, honey, and shortening on the stove and stir till all is melted together; then take off and add milk and all the other ingredients.

A. C. L.

FOR THE T SUPER.

After reading Mr. I. S. Tilt's article, p. 207, and your note at the foot of it, here I am raising my hand on the editor's side. Yes, sir: I tried the two arrangements side by side for a few years; but of late I have bought only the T-super arrangement, and this winter have made all of my section-holder supers to take the T tins.

A. ROORDA.

DeMotte, Ind., March 20.

[Instead of being on my side of the fence, I take it from what you say that you are on the doctor's side. At all events, here is another man who is on *my* side. Listen to what he says:—ED.]

THE T SUPER GETS ANOTHER BLACK EYE; IN FAVOR OF THE 10-FRAME SIZE OF HIVE.

I notice on page 208 you wish a "show of hands" from those who have used T tins and section-holders. I expect to have to plead guilty as one of the fellows spoken of on page 214, who has tried nearly every new thing gotten out—by the Roots at least—but in a small way, and without much extra expense. In the end I consider my experiments have greatly benefited me. My latest tests have been with large and small 8, 10, and 12 frame hives and the T's. If you were to make me a present of 100 complete T supers I would not use

them so long as I could get wide frames. I prefer the wide frames to any other arrangement for comb honey, except, perhaps, the Danzy super with or without the fence which I tried last season, and believe will prove superior—in my hands at least—to any other arrangement now in the market.

In regard to the large and small hives, after using the three sizes mentioned above for the last three years I have settled on the ten-frame as the best for my locality. I believe locality has much to do in selecting the proper size.

M. D. ANDES.

Bristol, Tenn., March 25.

BLACK VS. ITALIAN BEES; A GOOD SHOWING FOR THE ITALIANS.

I had two swarms of black bees three years, and gave them each one full hive and one super, which were filled with honey each year. They have never cast a swarm. Now listen to the yellow bees. Last year I had four colonies, and gave them the same treatment I gave the blacks—plenty of room; two of them did *not* swarm, and gave me lots of nice honey. The other two *did* swarm three times each, and gave *no* surplus honey. They were all in fine condition.

L. E. BURLEY.

Exeter, N. H.

[If you had tested the two kinds of bees both the same season, the result would have been a little more exact. However, I must confess that I want to believe that the Italians are a little bit ahead generally. There will be something interesting about this same subject in this issue, from the pen of O. O. Poppleton.—Ed.]

VENTILATION FROM BETWEEN SUPER AND HIVE.

I see there is some discussion in GLEANINGS in regard to the use of blocks under the hive, to admit of ventilation in warm weather; but I consider it useless labor, as I have been ventilating about 150 colonies for comb honey for four or five years, by placing the super on the hive so as to admit about $\frac{3}{8}$ to $\frac{1}{2}$ inch space on top of the hive right over the end-bars, clear across the hive, which I find ample ventilation; and as the opening is above the entrance the ventilation is more direct, and the bees can also use it as an upper entrance, which has proved to do no harm when the space is closed later in the season.

Centreville, O.

G. W. LAWSON.

[Yes, I know you can get ventilation by opening the top of the hive; but I will bet a cookie, friend Lawson, that you would secure riper honey and better-filled sections, and have what is of considerable importance, more fragile comb, if you secure the ventilation by a larger or deeper entrance. In order to carry on comb-building, ripen honey, and cap the cells, the bees must have the requisite temperature; and letting draughts of air strike the top of the sections, as it will do at times, does not bring about the most favorable conditions, certainly, for comb-building, to my way of thinking.—Ed.]

HOW YELLOW-JACKETS TEAR OPEN BEES.

Last autumn, 1897, I noticed yellow-jackets alighting at the entrance of a hive. Not only did they alight without molestation or challenge, but, made their way fearlessly into the hive. Investigation revealed the fact that, in several hives, there were a few yellow-jackets, though there was no evidence of harm being done by them. Some of the hives were cleared of all I saw. In the spring I shall carefully inspect all hives for evidences of their presence.

On melon rinds last autumn I often saw bees killed by these pests. A jacket would grab a bee by the side, and, quick as a wink, tear a hole into its honey-sac, and leisurely proceed to devour its contents. Whether any of this is new to the fraternity, I do not know. I give it for what it may be worth.

Bees are wintering nicely. Of 40 colonies in fall, all were alive a few days ago.

Pueblo, Col.

O. L. REED.

THE GOLDEN SECTION-CLEANER; IS IT PATENTABLE? HOW TO MAKE THE SAND-BELT.

I see on page 130 what Bro. Golden calls a section-cleaner, and that he says he is going to have it protected by a patent. Well, that sounds to me pretty nearly as bad as the story I have just told you of the bees in this part of Florida. If Bro. Golden will use a band on his machine, made of several thicknesses of coarse muslin, and then put a good coat of glue on the outside of the band, and then just sprinkle the band with a good coat of sand, of the grade or fineness he wishes his work done on the sections, he will have just the proper thing for cleaning sections. That is the way all the sandpapering and polishing of all the fork, shovel, and other kind of handles have been done, to my knowledge, for over 15 years; and he will find, when he endeavors to obtain a patent on that, that he is not the inventor of that process at all, by several years, and I do not think I am making a mistake when I say that, if you will try the same plan on your machine, on p. 186, you will find out you do not need any sandpaper on your wheel at all; just fasten on a few hick-nesses of coarse muslin; sand it, and let it dry, and that will last much longer than sandpaper, and will make the dirt more than fly.

W. C. GREEN.

Lakeland, Fla., Mar. 5.

KEEPING BEES ON SHARES; A NEW PLAN OF DIVISION.

The question is asked as to a fair rental for bees. What do you think of the following? The party of the first part gives the bees, hives and fixtures, with the use of bee pasture, to the party of the second part, who thereupon assumes all future cost for the term of years for which the bees are rented out, for hives, honey-boxes, foundation, and, in fact, every thing that may be needed in the proper care of a well-ordered apiary. The party of the second part gives to the party of the first part a tenth of all the surplus

honey the bees may gather, and a tenth of the increase in bees. The honey is to be in merchantable shape, delivered at the apiary, and the bees to be in good substantial hives; and the party of the second part gives back the original stock upon the expiration of the lease, except in case of foul brood or loss of bees from some unavoidable cause.

DAMPENING SECTIONS ON THE GRASS.

Dr. Miller is somewhat worked up over my idea of putting sections on the grass under a tree to dampen them, and says the plan is too slow for him. Well, we are not all as big fish as Dr. Miller, and do not need so much water to swim in. There is not a little complaint about foundation falling down in the sections, especially when the prepared sections are put on too soon, and the bees are blamed with pulling down the foundation. Now, I happen to know that, when the sections are never wet from the factory to the hive, there is little or no trouble of that kind.

SMOKER FUEL.

If too much has not been said already about smokers and smoker fuel I would say that, instead of cutting all the wood for the smoker four or five inches long, as many advise, from one-fourth to one-third of the wood should be cut two inches long. By putting a little of this short wood into the smoker first, and then, when that is well on fire, putting in the longer wood, the fire will burn better, the smoker will work better, and the fire will be hot enough so that there will be no need of cleaning the smoker out; for if the fire is hot enough it will keep the smoker clean after the first few fires. I use dead wood—oak and elm mostly, but I like good sound wood also pretty well.

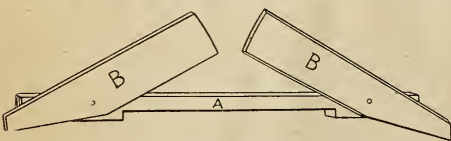
WM. H. EAGERTY.

Cuba, Kan.

[Your scheme of dividing the profits might be a very fair one; but there is one point you do not clearly cover. Suppose, for instance, that all or half the bees die; who will share the loss, and in what proportion? I take it that, in this proposition, the man who operates the bees would be expected to assume such loss, although an exception would be made in the case of foul brood and other *unavoidable* troubles.—ED.]

CONTRACTING DEEP ENTRANCES; HOW E. P. CHURCHILL DOES IT.

Friend Root:—Interested as I am in hives, etc., I have used all kinds of entrances; but the one I send you for the new entrance is



best of all. We surely need to govern a hive-door as much as a building-door; and this is simple and cheap and good for chaff hives, as well, using an inside piece so as to slip into the entrance.

E. P. CHURCHILL.

Hallowell, Me., Jan. 19.

[The strip A, at its widest part, is as wide as the entrance, and as long. I take it that friend Churchill slips this slat, at the close of the honey-flow, into the entrance; then if robbers get to nosing round the narrow entrance under A, it is further contracted by dropping the gates B B, one or both. But, hold on! It is possible that strip A represents the hive-front, and the slot under it the entrance. B B would then be fastened to the front of the hive permanently, and would be dropped down close to the entrance, separately or in pairs, as the case might warrant.

As for entrance-strips, I think I would use something simpler than any thing that has yet been proposed; namely, a strip of wood as long as the entrance, and a bee-space narrower than its width; or perhaps this would be better: a strip of wood as wide as the entrance, and an inch shorter than its length. With the last named I would secure different widths of entrances by sliding it catacornwise, regulating the angle according to the width of entrance desired.—ED.]

THE ADVANTAGE OF WIDE AND DEEP ENTRANCES; FROM THE STANDPOINT OF ONE WHO HAS GIVEN THEM A THOROUGH TRIAL; THE RANSON BOTTOM-BOARD.

Mr. Editor:—You intimate in your footnote, page 182, that you would have me tell your readers why the deep entrance is better than the shallow one. Well, first, thanking you for a generous footnote, I would state that the deep entrance is better for three reasons: 1. The bees want it; 2. It contributes to their comfort; 3. The results in surplus honey are better set forth as follows: The bees told by their actions they wanted deeper entrances when I found them gnawing and biting the top of small entrances, trying to get room for the pile of *idle* bees to get to work; 4. It contributed to their comfort. This they indicated by their quietness and active work when colonies with small entrances to the hives would in hot weather roar like an approaching storm, and hang idle on the front of the hive; also, the results in surplus honey are better, from the fact that more workers keep at work, and less idling and piling out in hot weather. Now a word about the Ranson bottom-board.

While I have no doubt that it will soon be as standard as the L. frame and Dovetailed hive, and I think also that many things of less merit are patented, still there is no patent on this, and all manufacturers are at liberty to make and all bee-keepers to use it; so I turn it over to The A. I. Root Co. as its guardian, with the hope that they see to it that some *other fellow* doesn't take out a patent on it so that others can't use it at will. If you please, Mr. Editor, don't let Dr. Miller call me mad because I did not tell about it sooner.

New River, Va.

W. B. RANSON.

[I consider this strong testimony in favor of the deep entrance; and while I have not had the opportunity for observation that friend Ranson has, yet the experience I have had

with similar bottom-boards leads me to swallow every word he says as simple truth. As to his bottom-board, I believe he has a good one. Lest our readers may have forgotten its construction as given away back on page 182, I would state that it is so made that the front bottom end of the hive-body just over the entrance is one inch from the floor-board, while the back bottom edge is $\frac{1}{4}$ inch. This makes an entrance one inch deep by the width of the hive. It also has the additional advantage that the bees are required to crawl either to the back end or the sides of the hive with their loads of honey. The effect is to cause them to fill the ends and outsides of the supers perhaps as well as the center. I say *perhaps*, because I do not know positively. Theoretically this would be the result, and I know of two or three who have reported that it is true in practice.

Friend Ranson speaks of one point—that, with the narrow entrances, the bees, in order to get sufficient ventilation, had “to roar like an approaching storm, and hang idle on the front of the hive,” while there was “quietness and active work” in those hives with the large entrances. This is a fact, or what I, at least, believe to be such, that the brethren may think on a little bit; and not only think upon it, but actually prove its truth or falsity this summer.—ED.]

DEEP ENTRANCE ALL RIGHT; KEEP BEES IN THE HIVES AT WORK.

Your hive-stand, with slanting 5-inch alighting-board and $\frac{3}{8}$ -inch entrance, will meet the approval of all advanced bee-keepers, I believe. About ten years ago I was using practically the same thing with 20 hives and 20 Simplificities with the regular alighting-boards, side by side. The heavily laden bees returning from the field would alight on the broad board, take a rest, and go into the hive with clean feet.

With the Simplicity alighting-board the bees would sometimes fall short and land on the ground, climb up on a blade of grass, only to tumble back and crawl to the hive and stain the cappings on the sections, because there was a difference in the color of the cappings, and I could see no other cause than dirty feet, as the ground was sandy loam, and I kept it cut close with a mower. The $\frac{3}{8}$ -inch entrance certainly keeps the bees in their hives at work better than the $\frac{3}{4}$. I kept my S. hives on stones, 4 small ones under each corner of a hive. W. J. RUSSELL.

Philmont, N. Y.

[It was in view of the facts set forth in your letter—that is, the manner in which the bee alights when coming heavily laden—that we constructed our hive-stand just as we did, with slanting front. In the days of the old Simplicity hive, when Novice used to write about bees, he often spoke about the fact that bees would persist in coming into the hives with muddy feet and soiling the nice white surfaces of the combs. In view of what you have said, I believe that the trouble was not because the bees were inclined to be untidy, but because

they *could not help* getting their feet muddy on account of the peculiar construction of the entrance. The old Simplicity body used to project over the bottom-board. This made it necessary for the bees to crawl on the *ground under the front of the hive*; and hence their muddy or soiled feet.—ED.]

THE NEW YORK STATE ASSOCIATION OF BEE-KEEPERS' SOCIETIES.

Friend Root:—For some reason the call for a meeting of the representatives of the bee-keepers' societies of New York, which was sent to both GLEANINGS and the *A. B. J.*, did not appear, so we did not have as large an attendance as we could have wished at Geneva, March 16; but there were enough societies represented to fully warrant us in going ahead with the State Association. The meeting was called to order by F. E. Emmons, and L. B. Smith was elected secretary. After a thorough discussion of the pros and cons of the case it was decided to organize a society to be called “The New York State Association of Bee keepers' Societies.”

W. F. Marks, of Chapinville, was elected president; Fred S. Emmons, Fayette, Vice-president; Harry S. Howe, West Groton, Sec. and Treasurer. The next meeting is to be held in Geneva, N. Y., on the second Wednesday in January, 1899. HARRY S. HOWE.

West Groton, N. Y., Mar. 20.

[I have already referred to this same society; and I feel sure that the men who are back of it are bound to make it boom. GLEANINGS offers its space to the association to use as it sees fit, providing, of course, it does not want “the earth and the fullness thereof.”

We regret the omission of the call in question. It was on our copy-hook, but became covered up with so much paper over it that our printers did not find it till too late.—ED.]

BERMUDA GRASS, ETC.

I've been very much interested in your voyage to Bermuda. It has a pleasant sound to me, for the past winter I've been interested in planting Bermuda grass. I've heard that the streets of Fort Myers, Fla., are all in its thick sod, which bears up the heavy wheels of loaded wagons. It has the thickest sod of any grass I ever saw. A great deal of this grass has been planted in the streets of St. Andrews during the past winter. I was in hopes that you had seen this grass on the island of Bermuda, and would tell us about it.

We sail much on the bay, and often out on the Gulf of Mexico. At times the Gulf acts like an untamed broncho—rears, plunges, and backs, as if trying to throw us off. When she is at these antics, we feel a queer sensation; and I lie down in the boat or on the prow, or stand up, with my arm around the mast, facing the wind, all the while telling myself, “You shan't be sick.” When one turns pale, the laugh goes round, saying, “You are getting white around the gills.”

Bees are holding high carnival here now. There are but few of them, as last summer's

severe drouth destroyed many. Their owners say "the worms eat them up." Fruit-trees are blooming, and the ti-ti is white with its lovely racemes, redolent of perfume. Door-yards are gay with phlox drummondii, exhibiting all the colors of the rainbow. Bees appear to work much on dew-berries. They run over the ground, forming a mat; and it's now white with many winged visitors.

MRS. L. HARRISON.

St. Andrews Bay, Fla., March 22.

[Yes, I saw plenty of Bermuda grass on the island; but, strange to tell, it does not seem to grow there with the luxuriance it does in many places in Florida, particularly Fort Myers. I was very pleasantly impressed with the beautiful green grass in that locality, especially right in the streets, as you say. I got up very early in the morning, when every thing was wet with dew, and the grassy lawns and streets and fields and knolls made me feel as if I should like to live in Fort Myers. My impression is that Bermuda grass thrives best in particular localities, and it may be utilized for many purposes besides being ornamental. I would advise testing it in different places, especially in tropical regions, where it is hard work to get a sod with other kinds of grasses. —A. I. R.]



C. A. A., N. Y.—You need have no fear about sparrows. They are almost as thick as the bees in our vicinity, and we never knew them in any way to molest the bees.

E. G., Pa.—The best way to utilize queen from queen-cells removed from hives to prevent swarming, is to put the cells in nuclei or queenless colonies, and allow them to hatch.

T. A. M., N. J.—I regret to inform you that bees do soil clothes in the way you speak of. The only way to do is to make the matter satisfactory with your neighbors in some way. If you sweeten them up with a few sections or bottles of honey you will probably have no further trouble.

J. B., Pa.—Your location would be excellent for keeping bees. Certainly the proximity to water would do no harm, and the mountain on the other side would have a tendency to prolong the season. Bees are very often near water without the least particle of trouble. I do not see why the honey should be dusty from the smoke of frequently shifting switching-engines. Better leave your bees where it is most convenient to attend to them.

W. H. B., Utah.—The problem nowadays is to prevent swarming, not to encourage it. If you want your bees to swarm, stimulate them by feeding, as recommended under "Feeders" and "Feeding," on page 28 of catalog mailed you. Get the colony fairly boiling over with bees, and then contract the

brood-nest, and you will have swarming with a vengeance.

E. P. S., Pa.—There will be no trouble in putting entrance-guards on the hives in the manner you describe in your letter. When a swarm tries to issue, and the bees have returned, you will need to change the inside conditions of the hive; that is, give them a new hive with frames of foundation with their old super, if they had one, on the old stand. The parent hive, with brood and a few bees, remove to a new location. Of course, the zinc must not be used at the entrance when you desire a young queen to be fertilized. The purpose of the perforated metal is to prevent swarms from leaving, and to keep undesirable drones from flying. We use entrance-guards every summer in our out-yard, and carry out the plan laid down under "Swarming," in our catalog.

W. T. S., Wis.—At the approach of the honey-flow put on one super. When this is partly filled out, put another one under it. If the flow still continues to be good, and the first super is about completed, raise the two up and put still another under; but ordinarily it will be better to put the third super on top, and allow the bees to complete the combs in the first super, or the one that is now in the middle. As the season wanes, it is always advisable to put the extra super on top of the pile. Hives may be used as soon as the paint is thoroughly dry. If they stand two days after being painted, that ought to be sufficient, ordinarily. Do not use too much drier in the paint. A paint that dries slowly will weather better than one that dries too soon.

I shall be glad to hear from you regarding the relative merits of top and bottom ventilation in the cellar.

S. E. H., So. Dak.—I see no reason why bee-keeping could not be made to pay in a region where there are hundreds of acres of alfalfa and clover; but if you already have a good position where you are I would not advise you to leave it just yet. You had better correspond with parties in the vicinity, especially bee-keepers. The nearest names we can give you, in South Dakota, are: J. H. Chapin, Winfred; Daniel Danielson, Clarkson; S. R. Hillman, Canova; W. H. Hubbard, Canton; George H. Jones, Spearfish.

While we should be very glad indeed to get your trade, it is only fair and honest to state here that the business of bee-keeping is very uncertain. Some years it pays well, and others it is a source of expense; but it is more certain in alfalfa regions than anywhere else in the world, especially if the alfalfa is in the region of artificial irrigation, and the water-supply is certain. If you have had experience, perhaps you could take fifty colonies and make a start, and make a success. We would suggest that you get a leave of absence for a short time, with the privilege of taking your old position up again. Look over the field, and inquire of local bee-keepers how the seasons are. If you decide to enter into the business, I shall be glad to hear from you further.



WE have just received word from Mr. H. Stevenson, of Innishannon, Ireland, to the effect that, after three years of waiting, he has coaxed the Postmaster-General of Great Britain to permit the transit of queens to and from the British Isles. To make assurance doubly sure he wrote to New York, and received reply to the effect that "notification was in due course sent to the U. S. Postoffice Department," and that "live bees could now be forwarded to and from Great Britain by post." For years we have been unable to send any queen-bees to England, and we are sure this new ruling will prove to be a great boon to bee-keepers, not only in England, but the whole world, in fact.

THE LANGSTROTH-MONUMENT FUND.

WE copy the following from the *American Bee Journal* for March 31:

Mr. P. E. Shear, of Ulster Co., N. Y., sent 50 cents on the Langstroth-monument fund. We are inclined to think that, before bee-keepers will be satisfied to let this matter rest, they will want to see at least \$1000 put into a monument to mark the resting-place of their beloved Langstroth. Why wouldn't it be a good plan for the large manufacturers of hives to contribute—oh! say about a couple hundred dollars each? Their prosperous business is practically the result of Langstroth's invention; and as bee-keepers are helping to support the manufacturers, indirectly it would be the bee-keepers' tribute to the memory of Langstroth.

Personally it seems as though our good friend York had got the figures a little high; but, never mind; if the bee-keepers of the world think we should invest \$1000 in this direction, The A. I. Root Co. will try to do its part. We therefore raise our contributions from \$10.00 up to \$25.00. If the other supply-dealers feel like contributing liberally also, we will increase our subscription to \$50.00. And, by the way, is it not about time that somebody should set to work to give us suggestions for print as to what said monument should be like? Let us not only have the form, shape, and size, but a suggestion in the way of an inscription.—A. I. R.

The A. I. Root Co.—I believe you have a credit for me on your books. Will you extract one dollar from the amount, and turn it over to the Langstroth-monument fund? It seems to me that a monument to the value of a thousand dollars should be erected to the memory of one who has done so much for the bee-keeping interests of the world. Every bee-keeper should be proud to have a hand in such a work.

Los Angeles, Cal.

J. H. MARTIN.

"STOP MY GLEANINGS."

AS a rule, when anybody complains of his paper, and wants it stopped, we try to overcome the difficulty and have our friend continue with us; but I am afraid we shall have to give it up this time. Read the letter below:

Mr. A. I. Root:—I must write you a few lines in regard to GLEANINGS. When my time expires, please stop it. The editor has refused to answer the question about honey mead, how it was made, and I was willing to pay the expense. But I was cut off like a "bum;" but my money must get what I want. If it

is not from one man it will be from another. I hope I shall find another good bee-paper—at least, I shall try. I started in the bee business in 1890, with two colonies, and I have to-day 200. I don't think I shall do without any bee-paper, but I will surely do without GLEANINGS.

M. DENTLER.

Taylor, Texas, March 26.

You see, our friend wanted us to print a recipe for making mead or metheglin (both of which are intoxicating drinks) from honey. Now, I think it must have been either John or Ernest who told him we could not conscientiously publish any such recipe, nor tell our readers how to make intoxicating drinks with the product of their hives. I do not think that either of the boys consulted me about it, but I am glad they took the stand they did. There is one thing that gives us a grain of comfort. The writer says, toward the close of his letter, that he hopes he will find another good bee-paper. He acknowledges here that GLEANINGS is good, even if it does refuse to give the recipe he wants; and I should not be very much surprised if all of the other good bee-papers would take the stand that GLEANINGS does. How is it, brother editors?—A. I. R.

SUPPORTING THE BROSIUS BILL; RELIEF FROM GLUCOSE-MIXING PROMISED.

THE following note, received from Bro. Abbott, of the *Busy Bee*, in reference to our item on page 269, will explain itself:

Friend Root:—I see by last GLEANINGS that you are under the impression that there was no change made in the Brosius bill as originally published. The Legislative Committee, to whom the bill was referred, made a great many changes in it, and among the changes was the dropping out of every thing that referred to patent medicines. There will be no lobby of these people at Washington to oppose the bill. We also dropped out the clause which required all manufacturers to register with the Secretary of Agriculture, and pay a fee of \$10.00 for the privilege of doing the same. I think that, when the bill is published as it was amended by the committee and adopted by the congress, you will see there will be no trouble in having all honest men unite in urging its passage. We thought it would be better to get a general law covering ordinary food products and drugs, and then hope for future amendments, than it would be to attempt too much, and be forced to contend with the lobby that might be sent there. I am pleased with your editorial remarks, and think that, with the unanimity of sentiment that now prevails with regard to the matter, we may eventually be able to accomplish something.

EMERSON T. ABBOTT.

St. Joseph, Mo., April 9.

I am glad to know that the Legislative Committee have left off the patent-medicine clause. I can not see any reason now why all honest people should not unite in urging the passage of this excellent bill. From my standpoint, any one who would oppose it must be in league with food-adulterators. We well know that they will put up pots of money to fight it.

Why, it seems to me that, if this bill can become a law, it will do more than any thing else to reduce the evils resulting from glucose-mixing.

We are now on the track of a party who formerly sold adulterated honey in this State; but since Food Commissioner Blackburn made it almost impossible for adulterated honey to be sold in Ohio, the same chap is now sending his goods into a State where they have not only no food commissioner but no law. Sup-

pose, now, we had a *general* law covering the whole United States. I am rather of the opinion that this same chap would not only crawl into his hole, but would "pull the hole in after him."

PLAIN SECTION—THE OTHER SIDE.

So far the matter that has appeared in GLEANINGS has been favorable to the plain section; but recently we have received two letters from different parties who tried them and did not like them. The particular ground of objection of one party seemed to be that they did not hold enough honey. The other man, years ago, used two-pound sections; but these did not take as well as the smaller sections having bee-ways. This would naturally be expected. I am quite willing to publish reports from those who have tested the plain sections and fences and have found them wanting or unsatisfactory. As I have often said, I do not wish GLEANINGS to give only one side.

The only valid objection that can be urged against the plain section is that it may not, when filled with honey, be as cratable as those with bee-ways. L. A. Aspinwall, of Jackson, Mich., who has tested them thoroughly, mentions this, but he has no trouble providing he takes proper precaution. He goes further by saying that the plain section will obviate the necessity of no-drip cleats, because the edges fitting close all around will prevent the honey from running down between the sections, causing them to stick to the bottom of the cases.

FOUR-BEE-WAY OR OPEN-ALL-AROUND SECTIONS.

SOMETHING like ten years ago there arose quite a furore over the style of section above mentioned. They had bee-ways in the sides as well as in the tops and bottoms, and many were the thousands that we turned out of this style, and sent them abroad over the land and across the ocean. There seemed to be a general verdict at that time, so far as I can remember, that the continuous passageways from side to side resulted in a better filling of the comb. At the Columbus Centennial in 1888, and later on at the World's Fair in Chicago, there was exhibited comb honey in open-all-around sections. In both instances my attention was called to the better filling of the comb. At various times since, reports from bee-keepers from different parts of the country have testified to the same thing.

Well, now, the question naturally arises, "Why didn't these sections push the others out of the market?" In the first place, they were awkward to get in and out of the supers. Those naughty jutting corners would stick and catch. Then, again, many thought it necessary to use tin separators having transverse slots coming directly opposite these side openings in the sections, which of course made an extra expense. Still again, these projecting corners had a fashion of splitting off; and, lastly, supply-dealers nowhere pushed them to the front. This last, possibly, may have had more to do with their waning popularity than any thing else.

We did not think of it at the time, but it occurs to me now, at least, that these projecting corners would come just at the point that would shut off free communication along the line where bees are inclined to make holes in the corners of the section boxes.

Now, then, don't you see that, with the plain section, one may carry out the principle of free communication from side to side by the use of a fence constructed on the principle of the one shown by J. E. Crane on page 185? Or one may use cleats on his fence as long as the section is tall, and shut off side communication entirely. Or he may use cleats that are an inch or more shorter than the width of the fence, thus securing at one and the same time continuous passageways at the top and bottom of the section, and for half an inch or more up and down on each side. In a word, it seems to me that the plain section may possibly secure the advantages of the open-all-around sections of former days, without their disadvantages.

THE NEW SECTION FOUNDATION—18 FEET TO THE POUND.

We have sent out a few samples of this to bee-keepers who are especially interested in light-weight foundation, or who might be in position to give the new product an early test. The first letter received came from our friend Bingham, of smoker fame. He writes:

Dear Sirs:—Sample of foundation is received—beautiful indeed. Mr. Dadant seems to think the wall a valuable feature in the process of making. Probably such is the case. We shall have a fair chance to demonstrate whether the wall is of value to the bee-keeper and consumer of honey, as we now have both kinds to use. The wall may be a greater factor in fishbone than thicker bases. At present I believe the evidence favors no wall, even if the base has to be thicker.

Farwell, Mich., April 5.

T. F. BINGHAM.

The second came from Mr. O. O. Poppleton, who, after testing the product, has this to say:

Mr. E. R. Root:—I have just examined those specimens of your new foundation sent me to be tested. I find the lower half of each sheet has not perceptibly stretched, while the upper half has slightly. The upper inch of the sheets has stretched from $\frac{1}{16}$ to $\frac{1}{8}$ inch; that is, from 6 to 12 per cent. As almost all the stretch is in this upper inch, it is safe to say the entire sheets of 4 inches long have stretched from $\frac{1}{16}$ to $\frac{1}{8}$ inch. The cells are built out fully $\frac{1}{4}$ inch, but as yet no honey has been stored in them, there being but little honey coming in just now. This test was made by fastening in top of brood-frames, and inserted between the first and second, and the eighth and ninth combs of a thriving nine-frame colony. I judge the test has been about the same, fully as severe as it would be in a stronger colony in the surplus apartment. It would have been a more reliable test if some of your ordinary thin foundation could have been alternated with this.

Saw palmetto is just coming into bloom. Prospects are favorable for a fair flow. O. O. POPPLETON.
Stuart, Fla., April 9.

We omitted to tell Mr. Poppleton which way to hang the foundation; and, in the absence of any specific instructions, he probably hung it in the brood-frames just as we hang all foundation, with two parallel sides at right angles to the line of support. The construction of the ordinary mill makes this necessary. Mr. Weed, by some experiments he has made, has come to the conclusion that it would be a great advantage to mill the foundation just the other way to, and he has therefore constructed a special mill. He finds that the

strength of the sheet is very much greater when hung the "wrong way" according to our preconceived notions, than when hung the right way. Or perhaps I should put it this way. It is possible to so construct a mill that the wall of the foundation will not be broken in milling, as is the case when the foundation comes from the ordinary rolls. Later I shall be able to explain that more fully by a drawing.

Well, he has not only been able to get foundation having a base $\frac{3}{1000}$ inch thick, but he thinks he has made a product that will stand a far greater strain for the same weight.

The test that Mr. Poppleton has already made is very gratifying, in that the bees do not tear down, as we know they are inclined to do with the extra-thin article. If the foundation had been hung the other way, we believe there would have been no sag. But suppose it had been hung just as Mr. Weed designed it to be, it is evident that, if a full sheet will stretch slightly, a half-sheet or starter will stretch imperceptibly. There, now, don't you see we can make an article having bases as thin as thin paper, and the walls be about as heavy as the ordinary thin foundation? This 18-foot-to-the-pound wax is lighter than the no-wall article, and, what is more, the walls will prevent its warping. I feel satisfied that the walls will never cause the so-called "fishbone." No, Bro. Hutchinson, I've not changed my base on this point.

WARMING A HIVE BY ELECTRICITY.

THAT is what Mr. Weed is doing now with an experimental colony. Two wires run down from one of our "maius" into a rheostat coil in the hive. Just over the coiled resistance wires that furnish the heat is a sheet of glass; and under this a thermometer and test sheets of foundation.

When the temperature stands exactly at 100, the bees will work at comb-building; but when it rises to 110 they desert the super entirely. At first, when we lifted up the cushion the bees would fly up and bump their heads against the glass; but now they have become accustomed to it, and keep on minding their own business when we take a "peek."

FOUNDATION EXPERIMENTS.

Electric heat can be varied at the will of the operator, or even be kept at an absolutely uniform point. There, now, don't you see we can carry on experiments in comb-building and testing light-weight foundation right in the early spring, when the nights are cool, and the days, for that matter, are too cool for the bees to fly? As we are running night and day we have current during this time.

This reminds me that 18-foot-to-pound foundation, in this hive, when hung as it should be, and two inches wide, does not sag in the sections, and the bees apparently accept it all right. We will report later.

Later.—Since writing the foregoing we have been trying 11, 13, and 18 foot-to-pound foundation side by side. The first two are our regular thin and extra thin, and the last is the special on Weed's last mill. Greatly to our surprise, in this test at least, the 18-foot article was accepted quicker and drawn out fur-

ther than either of the other two. We can explain it only on the ground that Mr. Weed has taken nearly all the wax out of the bases and put it in the walls, where our bees want it.

We shall not be able to supply this new article in quantity at present, but we will send out a limited number of packages, six sheets for two cents to pay postage, 2x4 inches, to all those who apply and will promise to test it and report.

COST OF IMPROVEMENTS.

F. L. THOMPSON, in the *American Bee Journal*, thinks the price of honey does not bear a just proportion to the price of supplies; and then he goes on to give the cost of the fence and plain sections. In regard to shipping-cases, while he does not condemn the no-drip style, he would like to have something simpler, something that requires less labor to fix up. I grant that there seems to be much of truth in this. But let us look into the matter from another standpoint.

Although we may not at present seem to be doing it, we are striving to save in every way possible that one big item he refers to—labor—on the part of the bee-keeper and cost of supplies. Regarding this, compare prices of a few years ago with those of to-day; sections especially have fallen. The new 18-foot-to-the-lb. foundation will be cheaper than the old 11 and 13 ft. to the lb. article. If plain sections ever get to be popular, it ought to be patent to any man who "can see through a ladder" that they can be made cheaper, and will consequently be sold for less money, than the old-style sections *using more timber, and requiring more labor to make them*. Plain sections, of course, cost a little more than they will in the future, because this is really their first year in the market; i. e., they have been pushed into prominence. It is hardly fair to compare the cost of these things with that of other separators and other sections that have met the competition of the markets for years.

Why, friend T., we are working as fast as we can to avoid the expense of the extra amount of lumber; and, moreover, we hope these new fads are going to *save labor*. The old fads have done so, otherwise they would not be in the market to-day. Friend Thompson would not avoid improvements simply because they cost money at first. Smokers, foundation, and extractors, for instance, were costly improvements.

TALL SECTIONS FOR ALL MARKETS.

I THINK it only fair to state that the tall section may not be suitable for all markets. I know it has a big demand in parts of York State, in Washington, Maryland, and in quite a number of the Eastern States. I know it is also regarded with some favor in California. But I am of the opinion that the Chicago market will not tolerate any thing but a square box. Right here I want to correct a misapprehension. One or two seem to have the impression that I claimed that the tall section would be better filled out than the square one. Other conditions being the same, I should not expect a particle of difference.



BERMUDA AND ITS PRODUCTS.

Most people are more or less familiar with the banana-plant, so I need not take pains to give much of a description. The picture adjoining will tell you something what they are like; and, in fact, most people have seen



BANANAS AND PAPAYA-TREES GROWING ON THE ISLAND OF BERMUDA.

them in greenhouses. The banana does best on rather low land. It must have a great quantity of some sort of fertilizer. On rich ground, where they are well taken care of, the plants stand as close as from four to six feet apart, each one frequently bearing a stem of fruit that would be about all a man would

want to lift. I was somewhat disappointed in not finding ripe yellow bananas growing out in the fields. They are always gathered, or almost always, before they turn yellow, and are hung up in the groceries to ripen. After a plant has borne its fruit it dies down, and another one comes up from the same root, and thus the process goes on. It seems to me that a quarter of an acre in bananas, under high culture, yields about as much nutritious food as any other plant known. I asked some questions about the fertilizer used, and I believe it is mostly stable manure. The decay

of the old plant furnishes so much humus that the ground is generally thickly covered with decaying underbrush, or what we might call woods-dirt; but after all, when we think of the enormous weight of fruit taken away each season, we realize that fertility must be furnished from some source. In the winter time the high winds whip the leaves so as to split them to pieces and make the plantation rather unsightly. I once had a banana in a greenhouse, and it was really "a thing of beauty and a joy" — till I set it out on the lawn, and a high wind whipped its beautiful glossy leaves into unsightly carpet-rags. I do not know of a prettier thing for a lawn than some of the ornamental varieties of the banana-plant; but one ought to have some arrangement, say in the form of a tent, to set over it when the winds are boisterous. There

is another plant that looks very much like a banana, only it is taller. The fruit looks and tastes much the same, and many greatly prefer it. I do not now remember the name of it.

I have before spoken of the papaya (or melon) tree. It grows wild all over the island. I believe they are seldom cultivated.

Those in the picture are unusually large—that is, the tall ones in the foreground. The greater part of them are not too high to reach the fruit conveniently, and some of them bear very nice melons before they are as high as your head. After my seasickness on the steamer I was troubled with constipation. I mentioned it to Mr. Morrison, and he told me the island furnished the best remedy in the world, in the shape of a luscious fruit. When I suggested that fruit did not agree with me he said the papaya would agree with anybody—that, in fact, it contained the largest amount of vegetable pepsin of any plant or fruit known. We went over to a neighbor's—a Mr. Baker—who kindly picked off a ripe fruit almost as large as an average-sized pitcher and gave it to me as a "dose." One of the children brought me a spoon, and I sat down on the grass and enjoyed the "dose" as I never enjoyed any "medicine" before. The fruit looks exactly like a smooth muskmelon. The seeds, however, are very small—not much larger than tomato-seeds. Mr. Baker told me that people who are used to the fruit eat not only the seeds, but the entire inside, not scraping it out to throw away, as we do a melon. The taste is quite similar to that of a muskmelon, only it is smoother and richer. Imagine a delicious yellow ice-cream, flavored with some tropical fruit, say something like a banana, and you will get a faint idea of the luscious papaya. I ate the fruit again and again, at meals and between meals, and I never could see that it disagreed with me. In fact, when I took the first spoonful it seemed to satisfy a longing for something, I hardly knew what, that I had had almost all my life. Yes, it actually filled a "long-felt want." I do not know that I ought to say it furnished me strength as nourishing food does, such as eggs and milk—probably not. It is something like eating a lot of strawberries or nice peaches. The fruit is delicious; but with myself, at least, it would hardly be the thing to work on. Since eating the fruit I have attended a stereopticon lecture given by a missionary from the Micronesian Islands. He was speaking of one of the low flat islands almost on a level with the sea. I asked him:

"What do the natives do for a livelihood? What sorts of crops do they grow?"

"Crops! They don't grow crops or any thing else. They do not need to. The melon-tree and the cocoanut, with some other tropical plants, furnish them both food and drink whenever they feel inclined to climb the trees and help themselves. Why should they make gardens, or grow things?"

So you see that, in some parts of the world at least, the people subsist on these fruits with the milk of the cocoanut, and possibly the fish they catch. While visiting Gen. Hastings I expressed some surprise at seeing the papayas growing all over the plantation, here and there and almost everywhere. He laughingly replied that he thought he would have to tell how it came about. They fed the surplus fruit to the pigs, then the manure from the pens was worked into the soil everywhere, and this scattered the seeds so that they always

had plenty of plants, and more too. In the picture you will notice the artist has named the tree the "pau pau." I suppose this is a common name that has been developed from the word *papaya*. It is a little unfortunate, for the "paupau" (or pawpaw) in the United States means a wild fruit that is not considered of much consequence. The papaya will bear the second year from the seed. It grows up about as high as your head one season, and bears fruit the next. It will frequently bear very fine fruit when only four or five feet tall. Noticing a picture in one of our agricultural papers, of this fruit, I obtained particulars from Martin Benson, of Dongola, Ill., who grows and sells them as a greenhouse-plant. I extract the following from a letter just received from him:

Mr. A. I. Root:—The papaya is the grandest bedding plant ever offered, and a delicious fruit. I am very fond of it. It is as easily fruited in the greenhouse as tomatoes; blooms and sets fruit freely outdoors, but has not time to mature. They grow like a weed, and endure drouth better than any other plant. I think money can be made by cultivating this fruit under glass for near-by markets. My trees are all grown from a tree which has yielded 192 lbs. of fruit this winter, largest of which weighed 12½ lbs. MARTIN BENSON.

Dongola Ill., March 30

By the way, I am told there are several different varieties. The finest I ever ate, I think, was the one I have mentioned, given me by Mr. Baker. I think he obtained the seed somewhere, and considers it extra choice. Well, I took the liberty of wrapping up the seeds from a nice melon, and brought them home; and if any of the readers of GLEANINGS would like to make a trial of the plants for greenhouse I will mail with pleasure half a dozen seeds if they will send me a stamped envelope addressed to themselves. It is quite an ornamental foliage-plant, as friend Benson says, looking not unlike a castor bean when it is small. I think it might be grown in a tub, and set outdoors in the summer time, just as we do oleander, century-plants, and others of like habits.



Give, and it shall be given unto you: good measure, pressed down, and shaken together, and running over, shall men give unto your bosom. For with the same measure that ye meet withal it shall be measured to you again.—LUKE 6:38.

There are lots of good people in this world of ours. Why, a good many of my "happy surprises" are right along in this line. Yes, and best of all you can usually discover a vein of good in the most disagreeable people if you set about it in the right way. And, still further, it is in your power to a certain extent to make people bad or make them good. You strike the wrong keys, and there will be discord and stubbornness; and after you once get the discord well started it is not so easy a matter to bring out the harmony. Our text of to-day tells how to do it. It says, "Give;" and then it adds, "and it shall be given unto

you." The first thing to do to make men fair, liberal, honest, and generous, is to *treat* them that way—win their confidence. Why, after a man feels satisfied that you are not trying to beat him, and could not be induced to do it possibly, he will oftentimes surprise you by trying to outdo you in generosity. He will give even better measure than you gave him—"pressed down, shaken together, and running over." I think I can hear somebody say, "Oh dear me! but you don't find such men very often. Why, I never *heard* of a man who would shake the measure so as to settle the grain down when nobody was looking at him; and then to *press* it down after shaking, and putting on enough to make it run over—why, I do not believe there is such a man on the face of the earth." Hold on, dear brother; there *are* just such, and I want to give you a little sketch of a business transaction that made a lot of us on both sides feel greatly troubled and worried, but which ended—well, you just see how it ended. Read the following letter:

Dear Friend:—The seeds and onion sets arrived this morning all right, but you have made a mistake in the peas. You sent half a bushel of Champion of England instead of Alaska peas which I ordered, and which you billed to me. I inclose the labeled packet, so you can probably tell whose fault it is. I never use the Champion of England peas, as they require too much work to brush them when you have any quantity; and in this country the wind is too hard on them. Onion-sets are all right, and very good.

Seward, Neb., March 31.

S. H. BEAVER.

You see our customer lives away off in Nebraska; and sending half a bushel of peas of the wrong kind such a distance as that is a rather serious matter. The whole transaction was hunted up; the clerk who copied the order, the one who measured up the peas, the one who packed all the seeds in a box, and put it on the train. It seemed to be all straight everywhere; and the seed clerk declared most positively she put up the right peas, even if she *did* get on the wrong label. Then I dictated the following letter:

Friend B.:—We are very sorry indeed to get your report of March 31st; but our clerk who put up the seeds declares that she put up Alaska peas instead of Champion. If this is the case, of course she got hold of the wrong label and put it into the bag. We inclose you a packet of both Alaska and Champion, so as to be sure that you have actually got Champion. We don't see how you could mistake them, however, for the Champion is a wrinkled sugar pea. In regard to brushing, we never brush either of them for field culture. You speak of the Champion being taller than the Alaska. The Alaska we sell are almost if not quite as tall as the Champion; on rich ground they will run up fully as high. The worst objection that I know of—that is, if it is an objection—is that the Champion is quite a little later. They are a wrinkled sugar pea—in fact, one of the best in the world, and always bring better prices than other kinds.

Now, I expect we shall have to make this matter good, no matter what it costs, if you say so. I think you can sell the Champion to somebody for pretty nearly what they cost. You will notice that other seedsmen generally list these higher than we do. If we have really sent you the wrong peas, we ask you to sell them for what you can get for them, and we will either send you the Alaska or give you credit for the cost.

This is the second mistake we have discovered in sending out seeds this season, and the only really serious one. If it was nothing more than putting in the wrong label, we are all right after all.

After the above had gone I watched the mails a little anxiously to see what the report would be. Here it is:

Dear Friend:—I am very glad to say that the mistake was in the label, and that the peas are all right. I had never had any of the Champion of England peas, so was not acquainted with them, or I would have recognized them; and as I was not very well acquainted with the Alaska, and as they were labeled, both inside and outside of the bag, I thought surely they were the Champion of England, and so wrote you accordingly; but I see by the samples you send that there is a very great difference in the peas, and will know them hereafter, even if labeled wrongly. So there is no harm done, and the only difference it makes is that they would have been planted several days ago if I had known they were all right.

You say you never brush the large wrinkled peas for field culture. I have had poor success with them in that way, as they rot badly for me, so I have been growing Premium Gem and the dwarf kinds of wrinkled varieties.

I am very grateful for your offer to make good the peas, and appreciate it just as much as though the mistake had been as I first supposed. In fact, I am glad that the seeming mistake was made, as it does me *so much good* nowadays to find a man who is willing to do as he would be done by, for I sometimes feel as Elijah did when he wanted the Lord to take him out of the world, as he thought that he was alone. But, praise the Lord, Bro. Root, he knows our feelings; and when we need encouragement he gives it to us in a way we can not doubt that there are some left in the world who have not bowed the knee to Baal. I wish I could see you and talk with you personally; but such is not the case; but I expect to see you when we have done with the cares of this world, and shall "see as we are seen, and know as we are known."

Your brother in Christ,

Seward, Neb., April 5.

S. H. BEAVER.

Why, dear friends, it would almost look as if there was a providence in the transaction, as the writer suggests. And then comes the signature of even a business letter, where he signs himself "Your brother in Christ." Well, this is not the first time that a mistake or misunderstanding has resulted in something that made me feel happy.

Away down through the past, during the years I have been in business, there are certain landmarks, as it were, scattered along here and there. Some accident or interruption in business has been the means of bringing out the fact that I have been dealing with a fellow-Christian—one who loves even the very *name* of Christ Jesus—the name that certainly should be the emblem of every thing that is honest and pure and upright. Of course, there is once in a while one who *talks* religion but does not *live* it. These things are sad—terribly sad—but they do not happen very often. Before I forget it, permit me to say that friend B. will be greatly surprised when he sees these letters in print. I had not time to ask his permission before using them; but I am sure he will not be offended. No real true Christian ever takes it amiss when any word or act of his is used, even in print, to spread the blessed gospel. I shall remember him many a long year, and he will remember me; and how it lightens the burdens of business to hear from those whom we have learned to know by some little incident like the one above! This fact of feeling that you are in touch with those who love the Lord, and those who would rather be held in the estimation of their fellows as being *honest* and *true*, rather than to be known as the possessors of millions, is worth every thing. May God help us to remember the *sacredness* of our calling and profession. May he give us grace to give good measure, pressed down, and shaken together. And, by the way, dear

brother and sister, if you are not already familiar with the latter half of this sixth chapter of Luke, may I beg of you to read it again and again? Read it, and weave it into your every-day life. Keep those beautiful words in your mind all day long—words like these: "Do good, and lend, hoping for nothing again;" and, above all, strive each day to love even your *enemies*.

There is a story now going on in the Chicago *Advance*, that I wish all might read. It touches on this matter of putting foreign brands on certain goods that are manufactured here in our own country. The foreign stamp is to make them *sell*. Don't do it. Have nothing to do with such work. Tell your employers that you belong to Christ Jesus, and can not tell an untruth, nor even be a party to an *appearance* of untruth. If you have any thing to do with advertising, or writing advertisements, make such advertising agree with the spirit of our text. Give better measure than you agreed to give in the advertisements. Surprise people, not because the things you sell are not up to representation, but because they are even *better* than they are represented to be. Have nothing to do with scant measure in any shape or manner. If your goods have faults, let the customer know about the faults before he pays his money. Make his interest your interest, and verily the promise shall be yours—"For with the same measure that ye mete withal, it shall be measured unto you again." *You* will have happy surprises, as well as Uncle Amos. Men will be giving you good measure, shaken down, and running over when you least expect it; and you may even say with reason, "Why, look here, neighbor; how is this? You have brought me more than a bushel of potatoes." And then the neighbor will say, smilingly, "Well, you gave *me* more than I expected, at such a time." Why, dear friends, this would be a millenium here on earth if we could all get to doing business in that way.

I recently bought some Early Ohio potatoes of a neighbor. I told him I did not believe I could stand it to give the price he asked for them. There were fourteen bags, and he put a bushel in each bag. Finally I said, "Let's pour out a few and see what sort of *measure* you give." The Terry bushel boxes were heaped up—in fact, the potatoes would not all stay on. Said I, "Oh! if that is the kind of bushels you have in every bag I will willingly pay the price." Now, he had not told me he had given extra large measures. He did not say any thing about it; he simply said he had brought me fourteen bushels. I have bought potatoes several times where they did not make the bushel boxes even level full. You may suggest weight. Well, that is the proper way to buy potatoes; but even then we can not always make it exactly fair by weighing; for where they are kept in a damp cellar they will weigh considerably more than where they have been kept in a cold cellar that is pretty dry. There are many things to be taken into account in handling goods, especially farm produce; but where the man has it in his heart to be fair—where he is trying to live out and to live up to the teachings in the sixth chapter

of Luke, why, bless your heart, there will not be any trouble anywhere. Everybody will be glad to see a Christian who not only talks in prayer-meeting, but who makes his every-day acts talk louder than words *can* talk.

Now, friends, shall we not just have fun during this beautiful springtime, instead of wearing out with care and worry, and, may be, have a neighborhood quarrel on our hands besides? May the great Father be with you all; and may the Spirit of his only Son, Christ Jesus, help you to love your neighbor as yourself; and not only this, but to love even your enemies until they are enemies no more, but dear friends and "good neighbors." God speed you all.

THE SHAWNEETOWN DISASTER.

I suppose most of the readers of GLEANINGS have heard about the terrible flood at Shawneetown, Ill., and its consequent loss of life and property. It turns out that there was a bee-keeper among the number. Please read the following letter:

Dear Sir:—I was living in the suburbs of the town where I have been living for the last 20 years. I had my bees, 200 stands, and all I had, there. Yesterday at 4 P.M. the levee broke on the upper side of town, it being over 20 feet high, and the water came in such a rush it washed away nearly half of the town, drowning perhaps 100 or more people. I lost my bees, building, and every thing I had, excepting the shirt I had upon my back, and one blanket I had around me. The water lacked 4 feet of being to the top of the levee. No one was suspecting any thing. By some means it cut under the bottom of the levee, though the base was over 100 feet. My family all escaped with only the clothes they had on. I do not want, after those long hard years of toil, to be taken to the county-house, therefore please cancel my order and return to me the money. Now, friend Root, if you can help me by appealing to the sympathy of the bee-keepers of the country please do so. Were I on my feet I would ask no help; but in my condition there is no alternative.

Hoping you will be able to help me some in this terrible misfortune, I am respectfully yours.

Shawneetown, Ill., Apr. 4. THOS. McDONALD.

Perhaps I may add, by way of explanation, that the writer of the above is a cripple, and has had a very hard time in scraping together his little property that was taken away almost without a moment's warning. Such disasters, I am glad to say, are not of frequent occurrence; and neither our friend nor any of the sufferers could in any way be blamed for the catastrophe. It seems to me no more than fitting that the bee-keepers of our land, under the peculiar circumstances, should give him a little help. We will start the subscription at \$10.00, but hope that no one will be hindered, even if he can give only a little. Let us have it, friends, big or little, whatever amount you feel you would like to give. Money may be sent direct to the writer of the above letter, or to us, as you choose. Perhaps it had better be sent directly to Mr. McDonald, as he would in that case get it sooner. We will give proper credit through our journal for all that may be sent. Large sums have been sent, not only in money, but in donations of food and clothing to the sufferers. Now let us see if the bee-keepers of our land can not look after this, one of our number, who seems so discouraged and downhearted. You know how the bees in a

hive will pitch in when somebody injures just one of the forty thousand. Shall we not do likewise?

One thing more: These goods that were ordered were mostly odd-sized—something that nobody but friend M. can use; and he can not use those unless he has some bees. If the bee-keepers of our land will give him some bees so he can start in again this spring we will donate \$25 on these odd-sized hives. Of course, we have returned all the money he sent us.

IS IT WORTH WHILE TO VISIT OUR FRIENDS IN OTHER COUNTRIES, ETC.?

The following clipping from the *British Bee Journal* of Feb. 10 hits the spot so exactly that we give it entire:

BRITISH V. AMERICAN BEE-KEEPING.

Messrs. Editors:—On page 2 of your first issue for 1898 you appeal to American and German bee-keepers to confirm your statement that British bee-keepers have little to learn as to bee-management from their friends abroad. I suppose it's a common thing for British bee-keepers to think there's nothing to be learned about bee-keeping outside their own island, and I know it's quite common for Americans to think there isn't enough to be learned across the water to pay for wetting their feet by wading across. I really believe both are fooled. I think if you were to be turned loose among the bee-keepers of this country you'd get many a hint of value; and if I could spend some time among English bee-keepers I'm sure I'd bring away a lot of information with me.

Why, don't you know there are a good many things in which there is a practical difference, both in appliances and management? Some of the difference may be accounted for by the different conditions, but many can not. Now, when you and I differ as to appliances or management, as no doubt we do, if we were to get together long enough don't you suppose each would learn something from the other? I don't believe either of us is so pig-headed that we wouldn't be willing to change if we saw the other had something better. Why, bless your heart, I look eagerly through the pages of the *B. B. J.* every week to find something new, and I think of more than one of you Britishers as a personal friend I'd be delighted to meet.

Now, please don't talk that way any more. You see, we expect to keep on learning from you, and it makes us feel that it's just a bit like stealing if we can give you back nothing in return. Yours till you say something bad again.—C. C. MILLER, Marengo, Ill.

[*Dear Dr. Miller:*—We don't want to say "something bad," and try to avoid doing so; that is just what we left it for others to say whether or not the reproach against British bee-keepers of "discovering nothing for themselves" was justified or not. Nor do we despair of getting some justification for our confidence in American fairness in this respect, even from yourself. Anyway, I (as junior editor in charge) am delighted to hear of your hearty wish to meet one of us "Britishers;" and as our senior, Mr. Cowan, is just now on American soil, I cordially invite you to try to get a bee-talk with him—say at Medina, where other editors could join you—about our ways and yours of doing things. It would do us all good to have a "report" of such a meeting. What say you?—W. B. C.]

The above emphasizes a point I have long had in mind. The man who goes to California, or Florida either, and undertakes to dictate to the bee-keepers better ways for doing things had better go slow; and it is just the same way with gardening. I expected to teach the "natives" lots of things when I got over to Bermuda; but after I had been there about a week I had the conceit pretty well taken out of me. My ideas were very good for Ohio, but they did not fit Bermuda worth a cent; and when it comes to rapid work I never saw any men anywhere who would go through a piece of ground and leave it in as

nice condition so quickly as did those Bermudans; and they acted just as if they liked the fun of it. The onion-planters work so rapidly you actually could not see what their hands were doing. We see something of this same thing in a printing-office when a "lightning compositor" gets to work. That is really rich, what Dr. Miller has to say about "wetting their feet by wading across the Atlantic Ocean;" but it describes to a dot the conceit of some people. Now, they do not *all* live among the Yankees, nor are they *all* over in England; they are scattered around promiscuously, and they are usually a class of people who have never been away from home very much, and do not really know what is going on in this great wide world of ours. Why, even your old friend A. I. Root used to think America was ahead of all other nations in every thing. When somebody told me that in naval equipments England stood at the head of the world, Germany second, Russia third, and the United States—yes, the United States all scraped up—stood only *fourth*, I opened my eyes in astonishment. Then when friend Morrison remarked that the English flag floats over 450,000,000 people—a third of the whole human race—while the United States all told, according to our own figures, has a population of only about 65,000,000, I opened my eyes still wider in astonishment. Now, please do not any of you ever again get into that foolish attitude of thinking that your own country, your own bee-journal, or whatever it may be, contains *all* that is "worth having" in the whole big world.—A. I. R.

BEWARE OF MEN GOING AROUND TO REPAIR SEWING- MACHINES.

I send you this notice of a swindle that is being carried on in these parts, and no doubt will be extended to other places in time. The party represents a sewing-machine-repair agent; and if told the machine is all right he still insists on seeing it, and then he will declare it is in a horrible condition, as it has "lost motion," and is full of dirt (which may or may not be true). Anyhow, he will try to convince you it should be cleaned, which he would do reasonably, and that he never overcharges, etc.—say about 75 cts. or a dollar, also stating that he has not a dissatisfied customer; and then he will show you a recommendation from a great many you may know, but he is always careful to get that recommendation into his pocket. When you ask him how much it is you will be astonished at a price from two to *ten times* what was expected. He will then begin to argue that it needed more attention than he expected, and he said it would be only *about* such a sum, so far as he could see at the time. Then he will threaten to take the machine away, which he does by just unscrewing it and taking only the top part. As he deals mostly with the women folks he generally succeeds in getting his price in full, to the rid of him, and to prevent a lawsuit which he threatens. Look out for him. G. W. LAWSON.

Centerville, Ohio.

The above is an old dodge. It usually succeeds when the man of the house is not around, or where he can find a man or woman who has not cheek enough to drive him off. In the first place, never let an utter stranger tinker with your clock or sewing-machine. In the second place, have it distinctly understood that you will pay so much and no more if you should think best to set the stranger at work. Third, if you get in the predicament mentioned above, tell the man to take the machine off

from your premises if he dare. If he has cheek enough to have his threat put into execution, have him arrested. These land sharks will almost always take a reasonable amount when they find the scare (?) game does not work.

WIDE-TIRED WAGON-WHEELS.

Reports from Practical Experience, both for and against them.

GLEANINGS has just arrived. You ask farmers who have used wide-tired metal wheels to report. We have had a set four years, and find them very convenient and durable. My brother, E. W. Evans, drew large loads of ice over plowed ground that was frozen hard, and very rough, without any apparent injury whatever to the wheels. The wheels are low, and so are very convenient for drawing manure, rails, stones, corn fodder, etc. Instead of cutting into plowed ground the broad tires roll it down and make a good road. For drawing hay, nothing could be better; and there is not so much danger of tipping the load over. Our wheels are 24 inch front, and 32 hind, with 5-inch tires, and are not as heavy as our wooden wheels. We procured them from the Enterprise Manufacturing Co., Quincy, Illinois. My father says he would not be without them even if they cost double what he paid for them.

ARTHUR A. EVANS.

Kingsey, P. Q., Can., Mar. 25.

WAGONS AND WHEELS; SOMETHING FROM PRACTICAL EVERY-DAY EXPERIENCE.

The wide tires and low wheels have many points of excellence, but there are also drawbacks. I don't know about the wheels mentioned, but some of my neighbors got iron or steel wheels for their regular farm-wagons; but under heavy loads they would go down. The rims would get out of the true circle, and some of the spokes got loose, and then the thing would bend together and could not be repaired as a wooden wheel could have been. I have had in use for about four years a low-down wagon with 6 inch tires. I also have a regular farm-wagon called the "Champion," which, by the way, is a horse's true friend, as the tongue does not strike if the front wheels strike an obstruction. You all know how unpleasant it is to drive over boulders or even hard rough ground with the ordinary wagon, as the tongue constantly strikes right and left, and bruises the horses' legs and shoulders badly. With the Champion I can drive over any obstruction with the front wheels, and the tongue will keep straight between the horses and not hurt them in the least; at the same time the tongue will turn with the greatest ease under a very heavy load, something no other wagon will do. Thus you see I have a good farm-wagon; but with all that, our low-down wide-tire wagon is used ten times as much on the farm as is the regular farm-wagon. My wagon was made by the Handy Wagon Co. It is called the "Handy wagon," and is true to name. The wheels are solid wood, or, rather, planks bolted together with the grain of the wood running in three different directions. It appears thus far entirely unbreakable. We use it to haul about every thing on the farm, and, when solid, on the road. It is but two feet high, while the other one is over four feet, and it saves very much work to load and unload the potato-boxes, fruit, vegetables, manure, hay, grain, silage corn—in fact, anything that has to be handled on a farm. It will not upset along a side hill, like a high wagon. It will turn very short, almost like the manure-spreader, and that is a convenient feature.

I have now given one side; but there is another. If the ground or road is soft, so the wheels will cut in an inch or more, they will refuse to turn, but will slide, pushing the earth in front of them until a stone or something solid is struck, and then they turn, and a large mass of earth is pushed together where the wheel starts. This is repeated often, and puts the roads in an awful condition. If the road is full of ruts, as it is in winter and spring, the wide tires can not be used, as the wheels will stick in the ruts, and the horse can not budge it. The only remedy is to pry the wheel out. On solid road or soil I can haul a ton as easily with the low wide-tired wagon as with the other one; but there are conditions when it can not be used at all.

L. W. LIGHTY.

East Berlin, Pa., Mar. 26.

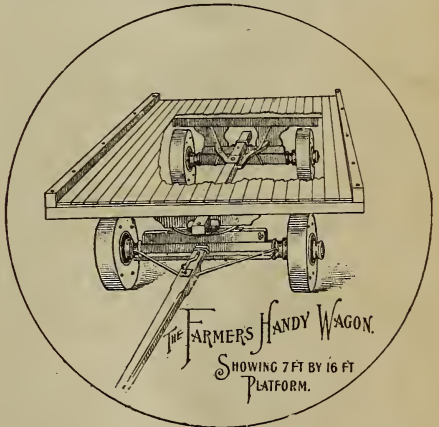
OBJECTIONS TO THE WIDE TIRE.

You invite us farmers to give our experience with wide-tired wheels. I have given the subject considerable thought for the past six years, both as to the construction of the wheel (for I've been trying to improve it, and to road-making, in which I've had much experience). So you see I've got wheels in my head (yet I seldom ride one).

You are right in saying that the steel wheel is necessarily heavier than the wooden one, if intended to stand up as long under the same load. The rim (tire) must be very heavy to give it stiffness or else the wheel tends toward flattening under its load; and this process going on, gradually loosens the spokes. Another objection to the small (diameter) steel wheel is that the leverage to overcome friction upon the axle is also reduced—this especially when the small wheel is fitted to a wooden axle (with thimble-skein).

The wooden felloe (or something else), which adds thickness to the rim of the wheel, is not only necessary for the purpose of strengthening the wheel, but this deep rim plays an important part upon our dirt roads. For instance, when the wheel sinks into the earth or mud beyond the depth of its rim the earth closes in over the rim, and is carried up with it—evidently taking the dirt from the low places and depositing it on the high. Especially is this noticed where deep ruts have been cut by narrow tires; and when the surface of the road is frozen, say an inch or two, and the wide (thin) tires wedged into the ruts, they stick; and I have known them to break out great chunks of frozen earth.

Again, on dirt roads made convex, or with an arched surface (for the purpose of shedding the water to the side ditches), those wide tires slip sideways more than the narrow, and, having little depth to the rim, it slips under the earth like a plowshare, rolling the dirt down toward the side ditches. This same objection to the wide thin-rimmed wheel is apparent on roads having an uneven surface (holes gouged out) caused by cobblestones or other hard substances on one side of the road, while the opposite side is composed of dirt, etc., which yields under the extra blow it receives, the narrow tire first cutting or gouging out a



hole, then the thin rim of the wide tire is shoved into or under the bank left by the deep-rimmed wheel, and large chunks of earth lifted out; consequently, instead of repairing the damage done to the road by the narrow tire, this thin rimmed wide tire aids, under the above conditions, to damage them. But I do not lay the blame upon the small steel wheel alone, nor entirely upon the thin rim; for some wooden (felloe) wheels are not much better in this respect than the thin or no-rimmed wheel, because the tire extends beyond the felloe (is wider). This is calculated to protect the felloe against the cutting action of the earth, etc., while cutting through it, and will lift and plow the earth to a certain extent as well as the little steel wheel, under the conditions above mentioned.

I have been trying to boom the wide tire wherever there was a chance; but it is uphill business where the narrow one is continually cutting a rut for the wide tire to run in.

JOHN HANDEL.

Savanna, Ill., March 25.

You will notice in the above letters we have some very strong points in favor of these

wheels, and also the particular objections. All together the testimony is pretty strong in favor of the solid wooden wheel made by the Handy Wagon Co. On account of this we have asked the manufacturers to furnish the cut as given on previous page.

It seems to me that a farmer who has very much use for a wagon should have, as I have intimated before, two wagons—one with the low-down wide tire, either wood or metal, and another, the ordinary kind, so that, when the time does come, even if not very often, that wide tires are not just the thing, the other wagon can be used. I am quite sure that, on a farm, something like the wagon we show above will be found exceedingly handy. We have one with small-sized rather wide-tired wooden wheels, that I find very convenient when the other wagon is away from home, being repaired, or even if it should have a heavy load on that it is not convenient to remove just at that time.



SOME OF THE STRANGE THINGS ABOUT POTATO-GROWING, ETC

The report of C. M. Whitney, in GLEANINGS, regarding the Thoroughbred potato, coincides very closely with our own experience with that variety. Our seed was obtained from you, and was given an equal chance alongside of Early Ohio, Polaris, and Carman No. 1. I don't think a bug visited the vines, as it is doubtful whether a dozen bugs could have been found in our entire field during the season. It came up well; we had a good stand, but it refused to stool, made almost no growth, set tubers shyly, and, when dug in the fall, gave us comparatively nothing, either in quantity or quality. On the other hand, the rest of the field gave us splendid returns in large, clean, beautiful potatoes. Now, please don't get the idea that I have fallen into a towering rage, and am going to take revenge by ordering my journal stopped, all on account of a potato. Not at all, Mr. Root. We have been in the gardening business long enough to find out that certain plants, be they vegetable or fruit, may turn out very fickle on occasion. Season, locality, soil, and treatment create conditions favorable or otherwise. We shall give the Thoroughbred another season's test on different soil, with possibly a repetition on the same soil.

Three years ago this spring we bought a barrel of the New Signal, then a much-lauded potato, which was planted and given our usual good care. Right alongside of them we planted Carman No. 1. The former gave us an enormous crop of the largest, smoothest, and finest-tasting potatoes I ever saw or ate. Carman behaved most abominably—ill-shaped, scrawny, a disgrace to any decent farmer. Both were planted again the following spring on the *very same* plat of ground, when, to our unbounded astonishment, the case was exactly reversed. Carman came out with colors flying—bright, large, clean, of good form, and excellent cooking quality; but, alas for poor Signal! it retrograded at a rate I never heard of in a potato or any thing else.

Still again, the best specimens from both were selected for a third trial on the same ground, and again Carman came nobly to the front, giving entire satisfaction, while *Signal* dwindled down to—*nothing*—yes, that's the only way to describe it. We have said, "Good by, Signal, for ever." Can you explain this, Mr. Root?

While we are on the potato subject I wish to touch the Rural New-Yorker. It does not succeed everywhere nor with everybody. We tried it in 1893 and 1894, in Central Nebraska. In 1893 it gave us no yield, no size; and in quality it was so watery and soggy that we simply could not eat it. In 1894, Nebraska's

year of overwhelming disaster, it succumbed entirely to drouth and heat. The vines actually seemed to cook in the sun, while the little tubers withered and shriveled in the soil. Right beside them Charles Downing and Early Ohio gave us a little more than one hundred bushels per acre. Bliss Triumph, obtained from you two years ago, never gave us satisfaction. The foliage turned brown, and shriveled, resembling leaf-blight. We have discarded both it and Howe's Premium, which was affected in the same way. We regard the two as identical.

Of the two new tomatoes purchased of you last spring, Fordhook Early and Mill's Earliest, the latter proved early and a fine variety; the former ripened with *Ponderosa*, and was badly affected with black rot—not one healthy specimen in the patch.

Just a word about that Rocky Mountain cherry, and I am through.

Do not be deceived. It is simply a sand cherry—nothing more, nothing less. Knox Co., Neb., is the home of the sand cherry. We have fruiting shrubs here, anywhere from six inches to six feet in height. We have two distinct grades—one is very fair eating, fruit large as a tame cherry; the other, fruit smaller, bitter, sour, and worthless. If you care to test some of them for yourself I shall take pleasure in sending you a box of the fruit next summer, free of all cost. The mountain sand cherry may have the advantage over ours in size of fruit, just as the mountain service-berry and Buffalo berry have over those grown here or further East. By the way, that buffalo berry is a much-abused fruit. We think highly of it, and I should like to ask you, Mr. Root, if you ever tasted any of its fruit; also if you are aware that its blossoms (those of the male tree, I mean) find favor with the bees. MRS. L. E. R. LAMBRIGGER.

Niobrara, Neb., Feb. 23.

We have had somewhat the experience our friend mentions in regard to testing new potatoes and other things, but never before have I had any thing so extreme. My first trial of the Rural New-Yorker made me pronounce it poor in quality; but afterward, when we had a dry season, it came almost up to the Freeman; but it has always proven to be a great yielder in our vicinity. I am glad to have further evidence that the Rocky Mountain cherry is sometimes fit to eat. They are certainly large, fine-looking cherries, and they call forth exclamations of astonishment to see such large fruit growing on such small bushes. Now, then, if we can have the *quality* added, it will certainly be worth while. Our buffalo-berry bushes have blossomed twice, but I think the fruit must have been killed by the frost. They are now ready to blossom again, and we hope for better results. Yes, I have seen the bees on them, and they were kept pretty busy.

SWEET-POTATO CULTURE.—PREPARING THE GROUND.

Continued from last issue.

The custom of plowing the ground early in the spring, and letting it lie idle till ready for use I find does not suit me so well as plowing it early, harrowing and cultivating it frequently, and ridging up some two weeks before setting. I make the ridges $\frac{3}{4}$ feet from center to center, and run over them with a Z. Breed cotton-weeder No. 9. The center fingers of this weeder are so arranged that they can be lowered for this work, and raised again for level culture. It requires about 15 minutes to make the change. If the ground has been properly prepared it will leave the ridges in excellent order. I use the single-bar plow for ridging, but presume the double would do just as well.

Be sure to run over the ridges with the weeder after every shower, and you will find that, when treated in this way, they will hold moisture better than those freshly made.

SETTING THE PLANTS.

The proper time is about May 1st in Southern Ohio. I prefer to wait for rain. One man can easily set 5000 plants in a day; and by hurrying a little he may reach 10,000. It requires about 12,000 plants to an acre, rows $\frac{3}{4}$ feet apart, and a foot between the plants.

I have a small boy to drop the plants across the

ridge, with the roots toward the right side, looking up the row. I straddle the ridge, and push the roots into the fresh soil with a small wooden paddle. This straightens up the plant. I then exert a downward pressure with the thumb and fingers of my left hand, and at the same time pull a little dirt with the paddle on the opposite side, and press downward toward the left hand. If one hasn't many to set, it would be better to use the forefinger of the right hand instead of the paddle.

To set the plants in a dry time, I use the puddling plan. Take fresh cow manure and a clay soil, and add water by stirring till quite a lump will hang on to a plant when it is dipped into the mixture; then take a small bucket and place in it some of this mixture, and about 50 plants. I do not have any one to drop the plants, but set the bucket in front as I walk down the row, and after making a hole with a dibble, I carefully lift the plant; and, after swishing it around in the bucket, I drop it into the place already made, and press the dirt against it firmly, using the thumbs and fingers of both hands, exerting a pinching and downward pressure.

Another method, called "the watering plan," is as follows:

In the evening, say after 4 P. M., make a hole in the ridge; drop in the plant, and pour in a pint of water. Let this remain till next morning; then fill with dry dirt. This will prevent baking the soil around the plant.

Never set plants in a dry time that have come from a distance. Heal them in first, and after getting them started, they can safely be removed to the field.

CULTURE.

I go over the ridge with the weeder already mentioned, just as fast as they are set, and it is indeed seldom I find a plant torn out. I use the weeder after every rain, and cultivate deeply between the ridges with a cultivator. I use the weeder till the vines are three feet long. If the horse walks slowly I find the vines slip around the fingers readily. When the vines are that long I give the ridge a thorough hoeing, and some two weeks later go between the ridges with the bar-plow, laying the vines over out of the way. By using the weeder, and cultivating in this way, I find the work of hoeing is greatly reduced.

I never bother pulling the vines loose after the last plowing, and never clip the vines to keep them from getting too large.

J. Q. MULFORD.

Lebanon, Ohio.

Concluded in our next issue.

I can endorse every thing said of sweet clover on page 277. My neighbors, to whom I have mentioned the matter, think it very strange that it should be considered a nuisance by any one.

J. M. CUTTS.

Chambers, Ala., April 8.



SPECIAL PURCHASE OF BUSHEL BASKETS

We have recently purchased a large quantity of hand made oak-stave bushel baskets at a price which enables us to offer them for \$1.50 per dozen; 80c for 6. This offer holds good only while present stock lasts.

WATER-WHITE CALIFORNIA HONEY.

We have received from R. Wilkin a carload of the nicest water-white honey we ever had. It has wintered over, and shows no signs of candying; is very thick, light-colored, and of very fine flavor. Price \$1.00 per gallon; 60-lb. can for \$5.00; case of 2 cans, \$9.00. 1 ts of 5 cases or more, 7c per lb. Light amber California honey at 1c per lb. less than above prices. Samples of water-white mailed to any one interested, for 6c, the price of the sample package. Free to intending purchasers.

BEEWAX WANTED.

Beeswax is growing more scarce in the market, and price is advancing. We mark up the price we pay 1 cent a pound, and will pay 27 cts. cash or 29 in trade for average wax delivered here. We are using over two tons a week, so you need not be afraid of sending

us too much; but don't put off sending it. If you wait till the season is nearly over before you send it you must not be disappointed if the price is lower again. Pack it securely, and be sure to put your name and address on the package, and write us, sending weight and shipping receipt.

MAPLE SYRUP AND SUGAR.

During the past week we have secured about 100 gallons of good "Buckeye State" maple syrup and a limited quantity of sugar, which we offer at the following prices:

No. 1 first-class syrup, 95 cts. per gallon; 10 gallons or more, 90 cts. per gallon.

No. 2, good color, full weight but slightly buddy, owing to being made late in season; per gal., 85c; 10 gallons or more, 80c.

We can furnish a limited quantity of sugar at the following prices: Extra choice, 10 cts. per lb.; No. 1 sugar, 9 cts. per lb.; No. 2 sugar, 8 cts. per lb.

THE SITUATION AT PRESENT.

During the past week our main engine-shaft broke in two. Very fortunately there was a large pulley keyed on just where the break occurred, which held the shaft in place till the break was discovered, and no serious damage was done, except a shut-down of a part of our wood-working building for three days and four nights. By day and night work in large iron-works in Cleveland we secured a new shaft in two days, and every thing is going again full blast. We have been shipping about an average of a hundred orders a day, besides two to three full carloads a week, so far this month, yet we have hardly held our own, and I believe we have more unfilled orders than at any previous date. As the season advances, the need of prompt shipment grows more imperative. We are doing our utmost, and our friends will have to exercise lots of patience or else look elsewhere for their supply. We have bought four carloads from other factories, and are placing orders for more. I will mention a few items to show the amount of goods we are turning out. During March we shipped seventeen thousand pounds of Weed new-process foundation, and so far this month we are going ahead of last month's record. We have about twenty people working on fences alone, and turning out about 600 a day. Our less than carload shipments for the first week of April aggregated sixty tons weight, or five carloads, besides three full carloads for the same time.

Many orders for little things of which we have a surplus, or for seeds and department store goods, go off within a few days; but on general bee-keepers' supplies, especially hives, we are very much behind.

SPECIAL SALE AT BALTIMORE, MD.

We have on hand at Baltimore, Md., in the hands of the Rawlings Implement Co., the following goods which we offer, to close out quickly, at the special prices annexed. Orders may be sent to us or to the Rawlings Imp't Co. direct. Some of the goods are old style, made several years ago, but to many they will answer the same purpose as the latest make. If interested, and you desire further particulars, write—remembering, however, that, at the prices we have set on the goods, they are likely to go off quickly, and they can not be duplicated at these prices:

300 thick-top brood-frames with top-bar 19 $\frac{1}{8}$ long, \$1.25 per 100; \$3.50 for lot.

700 all-wood frames, same as we now list, \$1.10 per 100; \$6.50 for lot.

200 half depth wide frames to hold 4 sections, 4 $\frac{1}{4}$ x 1 $\frac{1}{2}$, \$2.50 for lot.

5 Larabee bee-escapes, same as we formerly cataloged, 25c each; \$1.00 for lot.

5000 two-pound sections, 5 $\frac{1}{4}$ x 6 $\frac{1}{4}$ x 1 $\frac{1}{2}$. Write for special offer on this lot.

6 boxes of ten 1-gallon square cans with screws, \$1.20 per box; \$6.50 for lot.

15 light-frame gable covers for Dov. hives in flat, 15c each; \$1.75 for lot.

160 24-lb. single-tier shipping cases for 4 $\frac{1}{4}$ x 1 $\frac{1}{4}$ sections, no glass, nails, or paper, \$9 per 100; \$13 for lot.

10 12-lb. shipping-cases without glass, 75 cts.

90 Dovetailed winter-cases, in flat, 50 cts each; \$4.50 for 10; \$37.50 for lot.

1 comb-bucket, \$1.00.

2 Hubbard section-presses, at \$2.00 each.

30 old-style Alley queen and drone traps, 35 cts. each; \$3.00 for 10; \$7.50 for lot.

10 pair of hive-carriers, at 15 cts. a pair.

450 plain cartons for 4 $\frac{1}{4}$ x 1 $\frac{1}{4}$ sections, \$2.25 for lot.

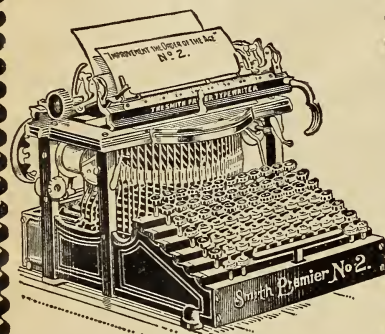
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